

636728

Report Number: 214-TRC-03-009

Safety Compliance Testing For FMVSS 214

Side Impact Protection

Indicant

**Bayerische Motorenwerke AG
2003 BMW 325i 4-door Sedan**

NHTSA Number: C30512

**Transportation Research Center Inc.
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East Liberty, OH 43319**



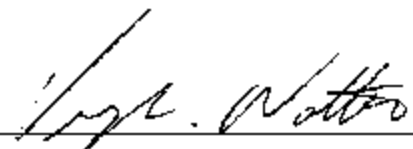
**Test Date: April 30, 2003
Final Report: May 12, 2003**

**U. S. Department Of Transportation
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, S. W.
Room No. 6111 (NVS-220)
Washington, DC 20590**

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Approval Date: _____

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16. Abstract <p>This 55/28 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2003 BMW 325i 4-door sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 (except the test was conducted 8 km/h (5 mph) faster than the standard specified) to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on April 30, 2003.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck (driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 343 mm at Level 2.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1"> <thead> <tr> <th></th> <th>Front SID-H3</th> <th></th> <th>Rear SID-H3</th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td>58.8</td> <td>g's</td> <td>49.7</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td>51.5</td> <td>g's</td> <td>52.3</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td>94.4</td> <td>g's</td> <td>47.6</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td>76.6</td> <td>g's</td> <td>50.0</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td>130.3</td> <td>g's</td> <td>55.9</td> <td>g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.</p>				Front SID-H3		Rear SID-H3		Left Upper Rib Acceleration:	58.8	g's	49.7	g's	Left Lower Rib Acceleration:	51.5	g's	52.3	g's	Lower Spine Acceleration:	94.4	g's	47.6	g's	Thoracic Trauma Index, (TTI):	76.6	g's	50.0	g's	Pelvis Acceleration (PEV):	130.3	g's	55.9	g's
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Section 1

Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2003 BMW 325i 4-door sedan. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (LP-214D-06, dated July 2001) with the exception of test speed, which was at the NCAP High-Speed Lateral Impact level (61.2 km/h).

Section 2

Summary of Side Impact Test

A 2003 BMW 325i 4-door sedan was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.1 km/h (38.6 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on April 30, 2003. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact Hybrid III dummies (SID-H3s) are included in Appendix A.

Two restrained Side Impact Hybrid III Dummies (SID-H3s) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SID-H3s were certified prior to this test. The side impact test was documented by one real-time camera and 6 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID-H3s were instrumented with the following accelerometers:

1. Head (HED) triaxial and redundant accelerometers (X, Y, and Z-directions)
2. Neck (NEK) triaxial force and moment load cells (X, Y, and Z-directions)
3. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
4. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
5. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
6. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact Hybrid III dummy (SID-H3) configuration and verification test data can be found in Appendix C. A total of 68 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following tables summarize the results of the test:

Injury Criteria	Front SID-H3	Rear SID-H3
TTI (g)	76.6	50.0
PEV (g)	130.3	55.9

Head Injury Criteria (HIC)

Injury Criteria	Front SID-H3	Rear SID-H3
HIC	324	312
t ₁ (ms)	25.4	57.0
t ₂ (ms)	58.3	64.4
Average Acceleration t ₁ - t ₂ (g)	39.5	70.3

HIC is as defined in FMVSS 208. The maximum time interval t₁ to t₂ is 36 ms.

Neck Injury Criteria

Maximum Values	Front SID-H3	Rear SID-H3
Neck X-axis Force (N)	-293	857
Neck Y-axis Force (N)	-550	-649
Neck Z-axis Force (N)	-1160	-1400
Moment About X-axis (Nm) ¹	-103.1	-83.5
Moment About Y-axis (Nm)	-32.9	-63.0
Moment About Z-axis (Nm)	-21.6	-21.3

¹ Calculated about the occipital condyle with the following formula: $M_{occ} = M_x + 0.01778F_y$.

Data Acquisition Explanations

The vehicle's left side sill at the front seat Y-axis acceleration channel, LFSYG1, recorded questionable data throughout the test. The vehicle's calculated left side sill at the front seat Y-axis velocity and displacement were also affected.

The vehicle's right side sill at the front seat Y-axis acceleration channel, RFSYG1, exceeded full scale at approximately 48 ms and recorded no useful data after that. The vehicle's calculated right side sill at the front seat Y-axis velocity and resultant acceleration were also affected.

The vehicle's left front seat track Y-axis acceleration channel, LFTYG1, recorded questionable data throughout the test and did not return to zero. The vehicle's calculated left front seat track Y-axis velocity was also affected.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2003 BMW 325i
Vehicle Body Style/Color: 4-door sedan/White VIN: WBAET37493NJ26109
Vehicle NHTSA No.: C30512 Build Date: 11/02
Engine Data: 6 Cylinders; CID; 2.5 Liters; cc
Placement: X Longitudinal; or - Lateral; or - Horizontal
Transmission: 5 Speed; - Manual; X Automatic; - Overdrive
Final Drive: - RWD; X FWD; - Four-Wheel Drive
Odometer Reading: 151 km
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 240 kPa Front; 290 kPa Rear
Recommended Tire Size: 205/55R16
Tires on Test Vehicle: 205/55R16 Manufacturer: Continental Contitouring
Contact

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total
Type of Front Seats: X Bucket; - Bench; - Split bench
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
Vehicle Max. Capacity Loading = 480 kg (A)
No. of Occupants x 68.04 kg. = 340 kg (B)
Vehicle Cargo Capacity (A-B) = 140 kg

Test Vehicle Delivered Weight with Maximum Fluids:

Left Front	=	<u>373.0</u> kg	Left Rear	=	<u>371.0</u> kg
Right Front	=	<u>382.5</u> kg	Right Rear	=	<u>380.5</u> kg
Total Front	=	<u>755.5</u> kg	Total Rear	=	<u>751.5</u> kg
Front % of Total Weight	=	<u>50.1</u> %	Rear % of Total Weight	=	<u>49.9</u> %
Total Weight	=	<u>1507.0</u> kg			

* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight with Max. Fluids = 1507 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 140 kg (B)
Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168 kg (C)
Test Vehicle Target Weight: = 1815 kg (A+B-C)

Fully Loaded Test Vehicle (UDW - 2 SIDs - Cargo):

Left Front	=	<u>410.5</u> kg	Left Rear	=	<u>525.0</u> kg
Right Front	=	<u>375.0</u> kg	Right Rear	=	<u>504.5</u> kg
Total Front	=	<u>785.5</u> kg	Total Rear	=	<u>1029.5</u> kg
Front % of Total Weight	=	<u>43.3</u> %	Rear % of Total Weight	=	<u>56.7</u> %
Total Weight	=	<u>1815.0</u> kg			

As Tested Weight of Test Vehicle (2 SIDs + Cargo + Equipment & Instrumentation):

Left Front	=	<u>415.2</u> kg	Left Rear	=	<u>474.0</u> kg
Right Front	=	<u>428.4</u> kg	Right Rear	=	<u>491.8</u> kg
Total Front	=	<u>843.6</u> kg	Total Rear	=	<u>965.8</u> kg
Front % of Total Weight	=	<u>46.6</u> %	Rear % of Total Weight	=	<u>53.4</u> %
Total Weight	=	<u>1809.4</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>700</u>	Right Front <u>686</u>	Right Front <u>683</u>
Left Front <u>698</u>	Left Front <u>675</u>	Left Front <u>683</u>
Right Rear <u>665</u>	Right Rear <u>607</u>	Right Rear <u>627</u>
Left Rear <u>670</u>	Left Rear <u>603</u>	Left Rear <u>621</u>

Test Vehicle Wheelbase: 2728 mm

C.G. = 1457 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4260 mm
Left Side = 4260 mm
Centerline = 4480 mm

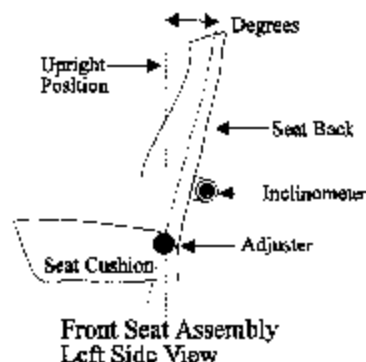
Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Front Seat Cushion Placement: 19th detent rearward,
counting full forward detent as number 1.

Total Length of Fore/Aft Adjustment Travel: 227 mm

Total Number of Adjustment Positions or Detents: 36

Front Seat Back Adjustment Position: The back was adjusted to 17.0° measured along head
restraint bars.

Seat Back Torso Angle: 17 degrees

Second Position Seat Placement: Fixed

Total Length of Fore/Aft Adjustment Travel: N/A mm

Seat Back Adjustment Position: N/A, not adjustable

Adjustable Steering Column Position: 23.5°; steering wheel hub is at geometric center of
its adjustment range (20.0°-25.0°)

Telescoping Steering Column Position: 90 mm; steering column is at geometric center of
its adjustment range.

Window Positions:

Right Front: Open

Right Rear: Open

Left Front: Closed

Left Rear: Closed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent in Fuel Tank:

62.8 liters (fuel tank usable capacity)

58.3 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point on Test Vehicle Side To Be Impacted:

Wheelbase = 2728 millimeters

Intended impact point is 940 millimeters forward of the wheelbase midpoint

Actual Impact Point is 426 millimeters rearward of front axle centerline

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2003/BMW/325i

Body Style: 4-door sedan

VIN: WBAET37493NJ26109

NHTSA No.: C30512

Build Date: 11/02

Test Date: 04/30/03

Vehicle Overall Length = 4480 mm

Overall Width = 1728 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>415.2</u>	kg	Left Rear	=	<u>474.0</u>	kg
Right Front	=	<u>428.4</u>	kg	Right Rear	=	<u>491.8</u>	kg
Total Front	=	<u>843.6</u>	kg	Total Rear	=	<u>965.8</u>	kg
Total Weight	=	<u>1809.4</u>	kg				
Wheelbase	=	<u>2728</u>	mm				

Longitudinal C.G. From Center Of Front Axle = 1457 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 2 mm Right of nominal impact ref. line (Lateral)

Actual Impact Point is 8 mm Up from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (<u>234</u>	mm above ground) =	<u>59</u>	mm
2. Level 2 (<u>480</u>	mm above ground) =	<u>343</u>	mm
3. Level 3 (<u>645</u>	mm above ground) =	<u>331</u>	mm
4. Level 4 (<u>868</u>	mm above ground) =	<u>305</u>	mm
5. Level 5 (<u>1360</u>	mm above ground) =	<u>84</u>	mm

Maximum Post-Test Intrusion = 343 mm

Occupants:

Front Passenger

Rear Passenger

Dummy Identification 028

065

Restraints Used Seat belt, head protection
system, side torso airbag

Seat belt

Instrumentation:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3 Offboard = 8 Total = 11

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer and Serial Number:

Plascore, 018A0303-2/013C0203

Position Of Impactor (MDB) On Monorail:

Crabbed 27°

MDB Specifications:

Overall Width of Framework Carriage	=	<u>1251</u>	mm
Overall Length of MDB (Incl. honeycomb impact face)	=	<u>4014</u>	mm
Wheelbase of Framework Carriage	=	<u>2591</u>	mm
Track of Framework Carriage (Front & Rear)	=	<u>1881</u>	mm
C.G. Location Rearward of Front Axle	=	<u>1117</u>	mm

MDB Weight:

Left Front	=	<u>383.6</u>	kg	Left Rear	=	<u>299.4</u>	kg
Right Front	=	<u>390.6</u>	kg	Right Rear	=	<u>286.8</u>	kg
Total Front	=	<u>774.2</u>	kg	Total Rear	=	<u>586.2</u>	kg
Total MDB Weight	=	<u>1360.4</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L) = <u>90</u> degrees							
Impact Speed = <u>62.1</u> km/h							

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	<u>172</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>90</u>	millimeters
3. Row C at Mid Level	=	<u>149</u>	millimeters
4. Row D at Top of Stack Level	=	<u>180</u>	millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Visible Dummy Contact Points:

	<u>Left Front SID-H3</u>	<u>Left Rear SID-H3</u>
Head:	<u>Head protection system.</u> <u>passenger seat head restraint</u>	<u>C-pillar/side header, head</u> <u>restraint</u>
Upper Torso:	<u>Side airbag, door panel,</u> <u>B-pillar</u>	<u>Door panel</u>
Lower Torso:	<u>Door panel</u>	<u>Door panel</u>
Left Knee:	<u>Door panel</u>	<u>Door panel</u>
Right Knee:	<u>None</u>	<u>None</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed and latched</u>	<u>Easy</u>
Rear:	<u>Jammed and latched</u>	<u>Easy</u>

MDB Distance From Target Impact Point:

Vertical: 8 mm up from target

Horizontal: 2 mm right from target

Arm Rest Locations:

Front:	<u>241 mm below the bottom of the window</u>
Rear:	<u>273 mm below the bottom of the window</u>

Seat Movement:

Front:	<u>None</u>
Rear:	<u>None (fixed seat)</u>

Glazing Damage:

Windshield:	<u>Broken along driver A-pillar</u>
Window:	<u>Driver and passenger side windows broken.</u>

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

None

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID-H3 Instrumentation Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

TEST NUMBER: 030430

DRIVER DUMMY SERIAL NUMBER: 028

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	9.2 g	@ 136.3 ms	18.9 g	@ 46.2 ms
LATERAL	51.0 g	@ 40.8 ms	17.7 g	@ 141.3 ms
VERTICAL	28.1 g	@ 26.2 ms	18.3 g	@ 36.3 ms
RESULTANT	53.7 g	@ 42.3 ms		
HIC	324 from 25.4 to 58.3 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	9.2 g	@ 135.9 ms	18.6 g	@ 46.0 ms
LATERAL	51.8 g	@ 41.6 ms	17.6 g	@ 141.6 ms
VERTICAL	26.2 g	@ 26.2 ms	18.1 g	@ 36.4 ms
RESULTANT	54.1 g	@ 41.6 ms		
HIC	326 from 25.4 to 58.2 ms			

NECK FORCE

X-AXIS SHEAR	94.6 N	@ 142.8 ms	292.9 N	@ 60.6 ms
Y-AXIS SHEAR	245.2 N	@ 40.8 ms	549.6 N	@ 29.6 ms
Z-AXIS AXIAL	960.3 N	@ 124.2 ms	1160.4 N	@ 37.8 ms

NECK MOMENT

ABOUT X-AXIS	27.6 N-m	@ 25.4 ms	106.2 N-m	@ 39.4 ms
ABOUT Y-AXIS	28.8 N-m	@ 77.2 ms	32.9 N-m	@ 47.8 ms
ABOUT Z-AXIS	10.5 N-m	@ 65.8 ms	21.6 N-m	@ 161.8 ms
OCCIPITAL COND	25.6 N-m	@ 84.8 ms	103.1 N-m	@ 39.2 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	58.8 g	@ 20.0 ms	10.7 g	@ 96.3 ms
LATERAL (R)	61.3 g	@ 20.0 ms	10.4 g	@ 96.3 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	51.5 g	@ 28.7 ms	15.2 g	@ 66.3 ms
LATERAL (R)	54.4 g	@ 20.0 ms	15.2 g	@ 66.9 ms
TTI d (P)	76.6			
TTI d (R)	78.1			

LOWER SPINE ACCELERATION

LATERAL (P)	94.4 g	@ 25.6 ms	18.5 g	@ 60.6 ms
LATERAL (R)	94.9 g	@ 25.6 ms	18.1 g	@ 56.3 ms

PELVIS ACCELERATION

LATERAL (P)	130.3 g	@ 23.1 ms	15.9 g	@ 48.1 ms
LATERAL (R)	130.8 g	@ 23.1 ms	16.0 g	@ 48.1 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 5 (Continued)

SID-IH3 Instrumentation Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

TEST NUMBER: 030430

PASSENGER DUMMY SERIAL NUMBER: 065

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

HEAD ACCELERATION

LONGITUDINAL	6.6 g	@ 72.6 ms	22.3 g	@ 83.7 ms
LATERAL	100.6 g	@ 60.2 ms	39.2 g	@ 243.8 ms
VERTICAL	14.5 g	@ 59.9 ms	23.6 g	@ 73.3 ms
RESULTANT	101.4 g	@ 60.2 ms		
HIC	312 from 57.0 to 64.4 ms			

HEAD REDUNDANT ACCELERATION

LONGITUDINAL	7.0 g	@ 72.8 ms	22.0 g	@ 83.5 ms
LATERAL	102.2 g	@ 60.2 ms	39.2 g	@ 243.7 ms
VERTICAL	14.8 g	@ 59.9 ms	23.5 g	@ 73.6 ms
RESULTANT	103.1 g	@ 60.2 ms		
HIC	329 from 57.0 to 64.5 ms			

NECK FORCE

X-AXIS SHEAR	857.3 N	@ 98.7 ms	140.9 N	@ 295.6 ms
Y-AXIS SHEAR	103.5 N	@ 246.9 ms	648.7 N	@ 96.9 ms
Z-AXIS AXIAL	534.5 N	@ 245.0 ms	1400.2 N	@ 63.0 ms

NECK MOMENT

ABOUT X-AXIS	15.1 N-m	@ 153.5 ms	78.6 N-m	@ 74.6 ms
ABOUT Y-AXIS	17.1 N-m	@ 106.4 ms	63.0 N-m	@ 81.8 ms
ABOUT Z-AXIS	21.2 N-m	@ 88.7 ms	21.3 N-m	@ 273.0 ms
OCCIPITAL COND	16.2 N-m	@ 168.9 ms	83.5 N-m	@ 74.6 ms

LEFT UPPER RIB ACCELERATION

LATERAL (P)	49.7 g	@ 55.6 ms	5.1 g	@ 261.3 ms
LATERAL (R)	48.8 g	@ 55.6 ms	5.1 g	@ 261.3 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	52.3 g	@ 56.3 ms	3.8 g	@ 108.1 ms
LATERAL (R)	52.1 g	@ 56.3 ms	4.1 g	@ 102.5 ms
TTI d (P)	50.0			
TTI d (R)	49.5			

LOWER SPINE ACCELERATION

LATERAL (P)	47.6 g	@ 61.2 ms	4.3 g	@ 106.9 ms
LATERAL (R)	46.8 g	@ 61.2 ms	4.4 g	@ 87.5 ms

PELVIS ACCELERATION

LATERAL (P)	55.9 g	@ 47.5 ms	5.7 g	@ 78.1 ms
LATERAL (R)	56.1 g	@ 47.5 ms	5.7 g	@ 78.1 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

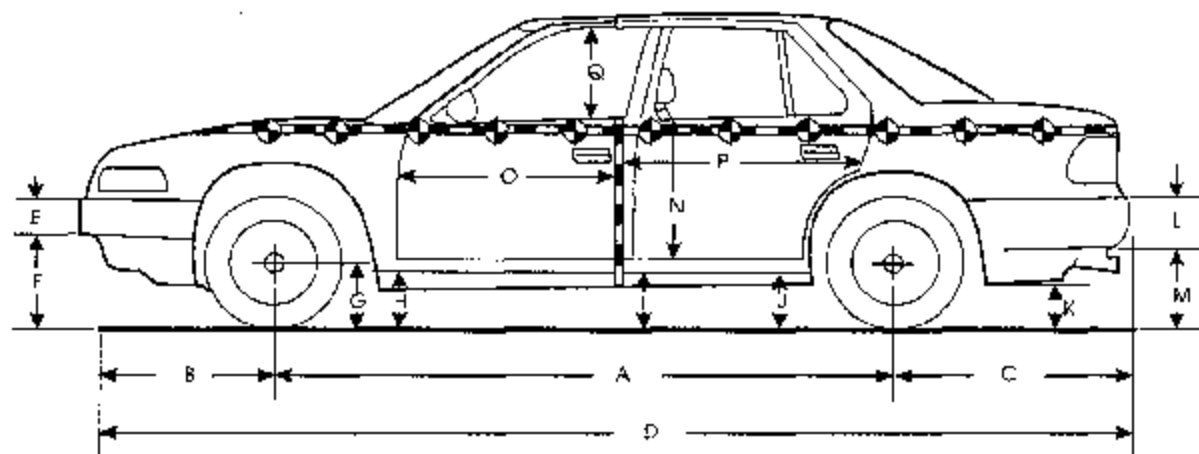
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2003 BMW 325i 4-door sedan

NIITSA No.: C30512



Left Side View

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2728	2728	2682	46
B	750	750	750	0
C	990	990	990	0
D	4480	4480	4480	0
E	190	190	190	0
F	325	313	351	-38
G	302	300	300	0
H	230	210	112	98
I	243	213	205	8
J1	185	155	177	-22
J2	132	201	221	-20
K	257	218	235	-17
L	290	290	290	0
M	342	294	310	-16
N	630	630	566	64
O	643	643	624	19
P	1357	1357	1255	102
Q	425	425	415	10
R	4260	4260	4276	-16
S	4260	4260	4195	65
T	1325	1325	1100	225

D = Length at centerline
T = Width at B-pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

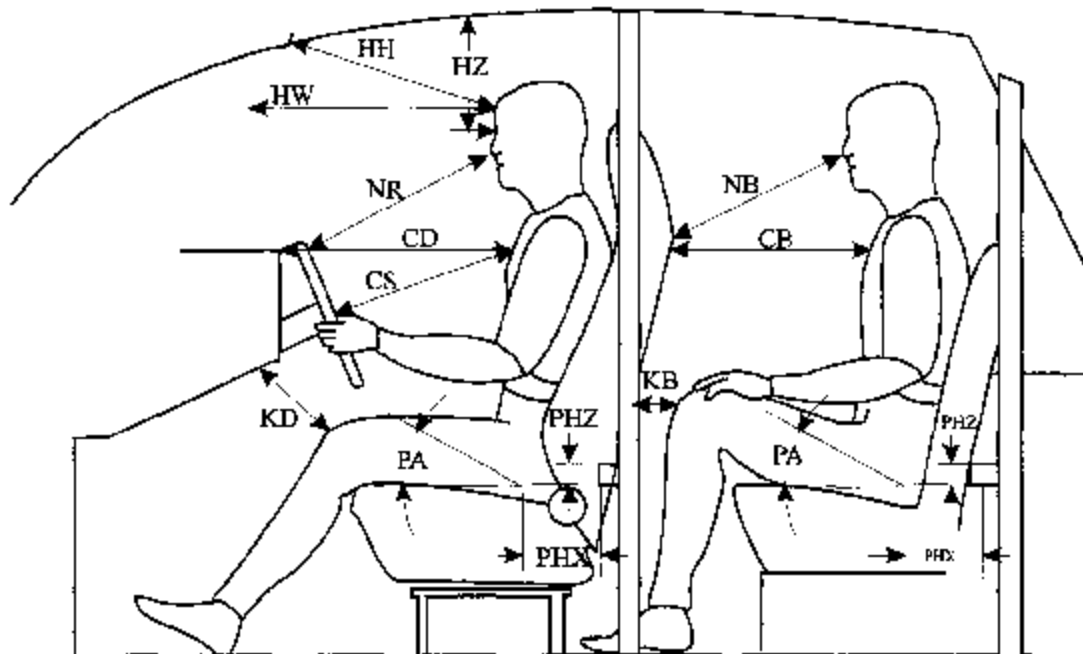
S = Left Side Length

Data Sheet 7

SID-H3 Longitudinal Clearance Dimensions

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



Left Side View

Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID-H3 # 028	Left Rear Pass. SID-H3 # 065
HH	439	N/A
HW	645	N/A
HZ	160	147
NR/NB	481	610
CD/CB	562	488
CS	368	N/A
KD/(KDA°)/KBL/(KBA°)	154/(56.0°)	80/(66.6°)
KDR/(KDA°)/KBR/(KBA°)	138/(46.8°)	85/(72.2°)
PA ¹	24.3°	24.8°
PHX	143	N/A ¹
PHZ	284	266

Note: Rear dummy PHX and PHZ measurements for 4-door sedan vehicle use the C-post striker as a reference point.

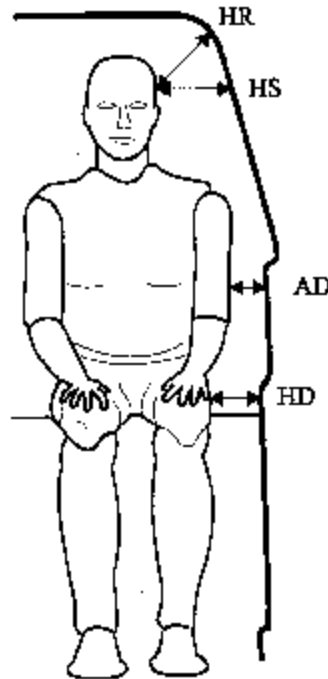
¹ The passenger H-point longitudinal measurement was within the specified window, but was not recorded.

Data Sheet 8

SID-H3 Lateral Clearance Dimensions

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID-113 # 028	Left Rear Pass. SID-H3 # 065
HR	180	220
HS	292	345
AD*	Lower: 98 Upper: 100	Lower: 168 Upper: 159
HD	153	221

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

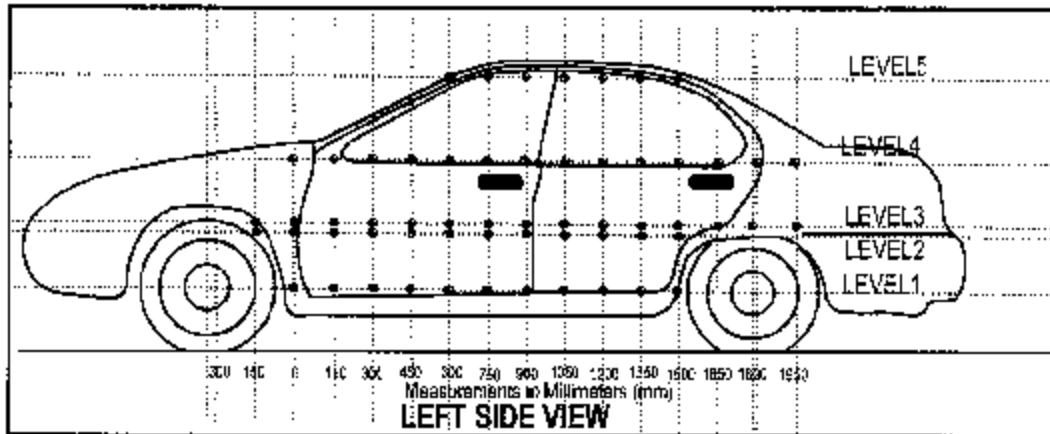
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1360</u>	mm
Level 4 @ Window Sill	=	<u>868</u>	mm
Level 3 @ Mid Door	=	<u>645</u>	mm
Level 2 @ Occupant H-Point	=	<u>480</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>234</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 BMW 325i 4-door sedan

NHISA No.: C30512

Location	Height	(mm) From Impact Point														
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	
Level 1 Side Sill	Pre	---	---	740	---	---	---	---	---	685	678	673	662	664	662	
	Post	---	---	740	---	---	---	---	---	687	707	719	721	721	716	
	Crush	---	---	0	---	---	---	---	---	2	29	46	59	57	54	
Level 2 H-Point	Pre	---	---	701	---	---	---	---	---	662	656	652	640	641	640	
	Post	---	---	695	---	---	---	---	---	759	865	907	940	957	948	
	Crush	---	---	-6	---	---	---	---	---	97	209	255	300	316	308	
Level 3 Mid-Door	Pre	---	---	---	708	645	---	---	655	659	655	650	638	637	634	
	Post	---	---	---	708	660	---	---	706	752	826	854	889	916	940	
	Crush	---	---	---	0	15	---	---	51	93	171	204	251	279	306	
Level 4 Window Sill	Pre	---	---	---	---	---	745	732	720	705	702	695	680	678	678	
	Post	---	---	---	---	---	765	755	755	755	762	794	830	875	908	
	Crush	---	---	---	---	---	---	20	23	35	57	92	135	195	230	
Level 5 Window Top	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Post	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Location	Height	(mm) From Impact Point															
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700			
Level 1 Side Sill	234	Pre	660	665	670	668	670	676	677	---	---	---	---	---	---	---	---
		Post	711	708	702	698	692	684	670	---	---	---	---	---	---	---	---
		Crush	51	43	32	30	22	8	-7	---	---	---	---	---	---	---	---
Level 2 H-Point	480	Pre	642	642	640	638	642	647	648	643	---	---	---	670	---	---	---
		Post	957	982	983	900	957	922	867	695	---	---	---	---	---	---	---
		Crush	315	340	343	262	315	275	219	52	---	---	---	---	---	---	---
Level 3 Mid-Door	645	Pre	635	638	635	637	638	642	644	648	---	---	652	695	---	---	---
		Post	931	935	946	956	955	960	926	805	---	---	983	710	---	---	---
		Crush	296	297	311	319	317	318	282	157	46	---	331	15	---	---	---
Level 4 Window Sill	868	Pre	678	670	670	673	673	675	676	665	700	708	718	735	---	---	---
		Post	925	931	929	947	977	980	920	810	742	741	746	754	---	---	---
		Crush	247	261	259	274	304	305	244	145	42	33	28	19	---	---	---
Level 5 Window Top	1360	Pre	958	945	942	942	940	943	948	951	970	---	---	---	---	---	---
		Post	1015	1005	1010	1026	1015	1009	1000	1000	1001	---	---	---	---	---	---
		Crush	57	60	68	84	75	66	52	49	31	---	---	---	---	---	---

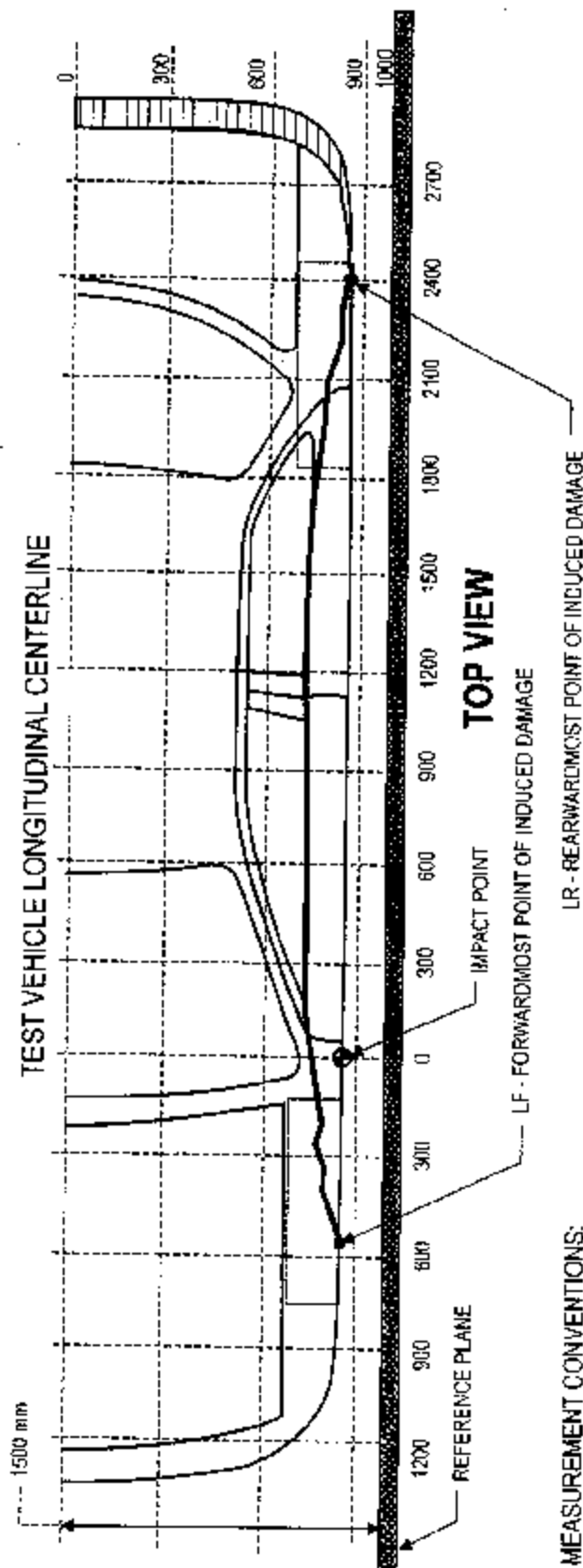
Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6: LF = -150 mm (Level 3)	706	655	51
5: 300 mm (Level 2)	907	652	255
4: 750 mm (Level 2)	948	640	308
3: 1200 mm (Level 2)	983	640	343
2: 1650 mm (Level 3)	960	642	318
1: LR = 2100 mm (Level 3)	680	634	46

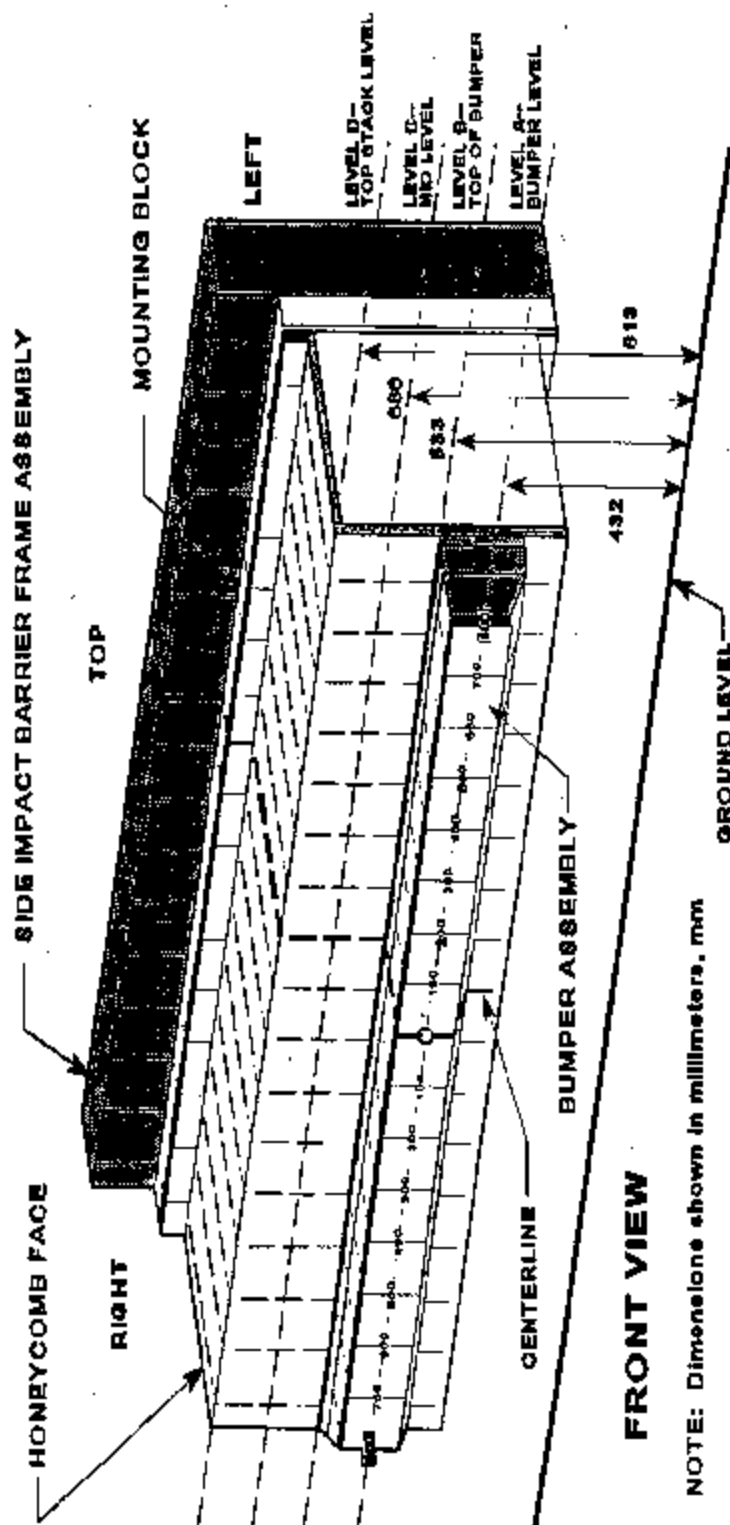
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Location	Height At C.L.	Distance Right of Center (mm)								0	Distance Left of Center (mm)							
		800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
Top Stack Level - Level D	813	-66	-19	-6	-9	-26	-44	-31	-24	-28	-34	-44	-56	-74	-102	-135	-159	-180
Mid Level Level C	684	-59	-19	-11	-12	-19	-36	-23-9	-18	-14	-15	-17	-22	-35	-55	-87	-130	-149
Top Bumper Level - Level B	559	-90	-74	-65	-50	-41	-42	-39	-42	-40	-36	-42	-44	-45	-47	-56	-76	-83
Mid Bumper Level - Level A	432	-172	-148	-119	-96	-95	-84	-79	-81	-83	-84	-86	-88	-89	-93	-109	-130	-130

All measurements are in millimeters and have a tolerance of ± 3 mm.

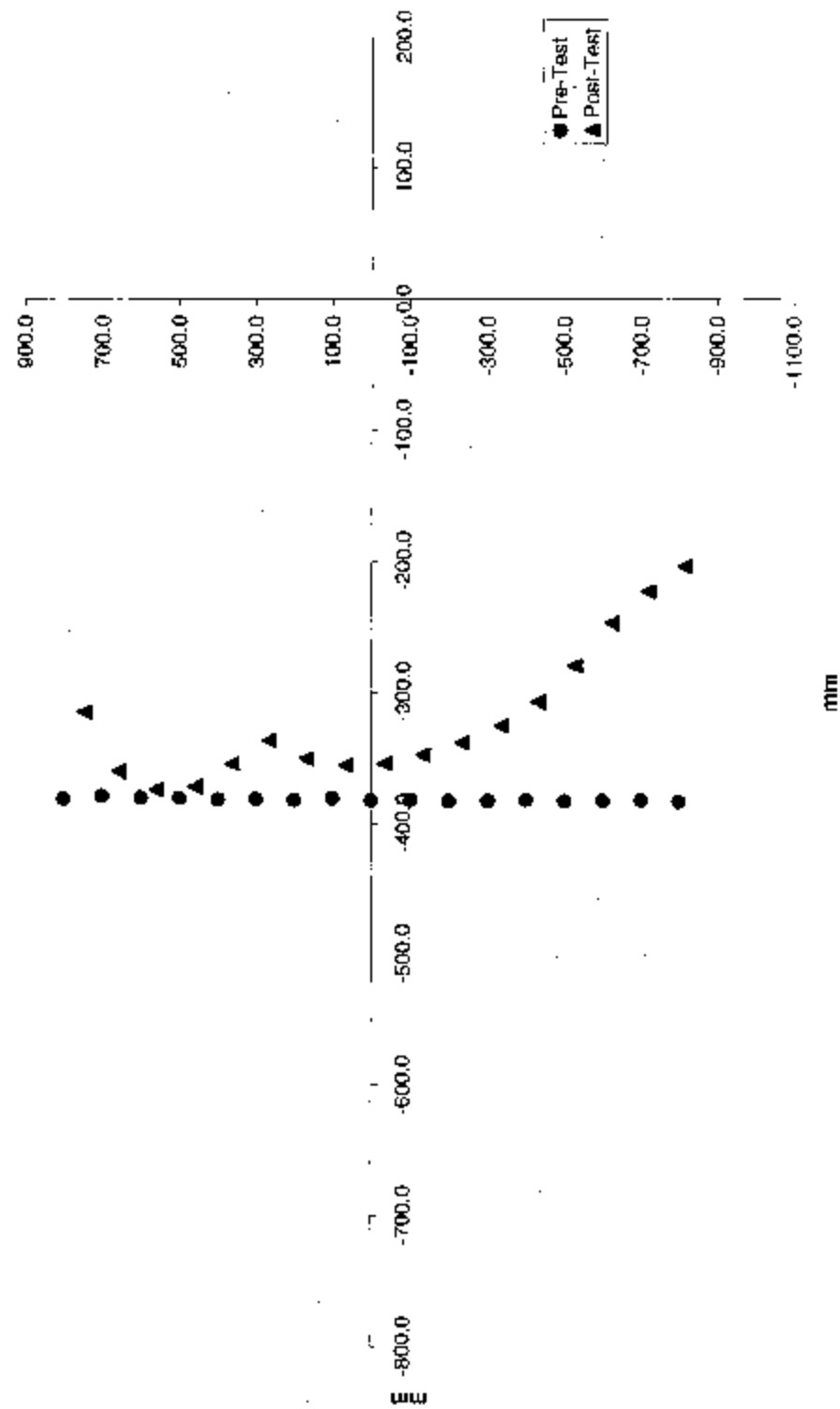
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Level D - Deformable Barrier Face Profile 1-17



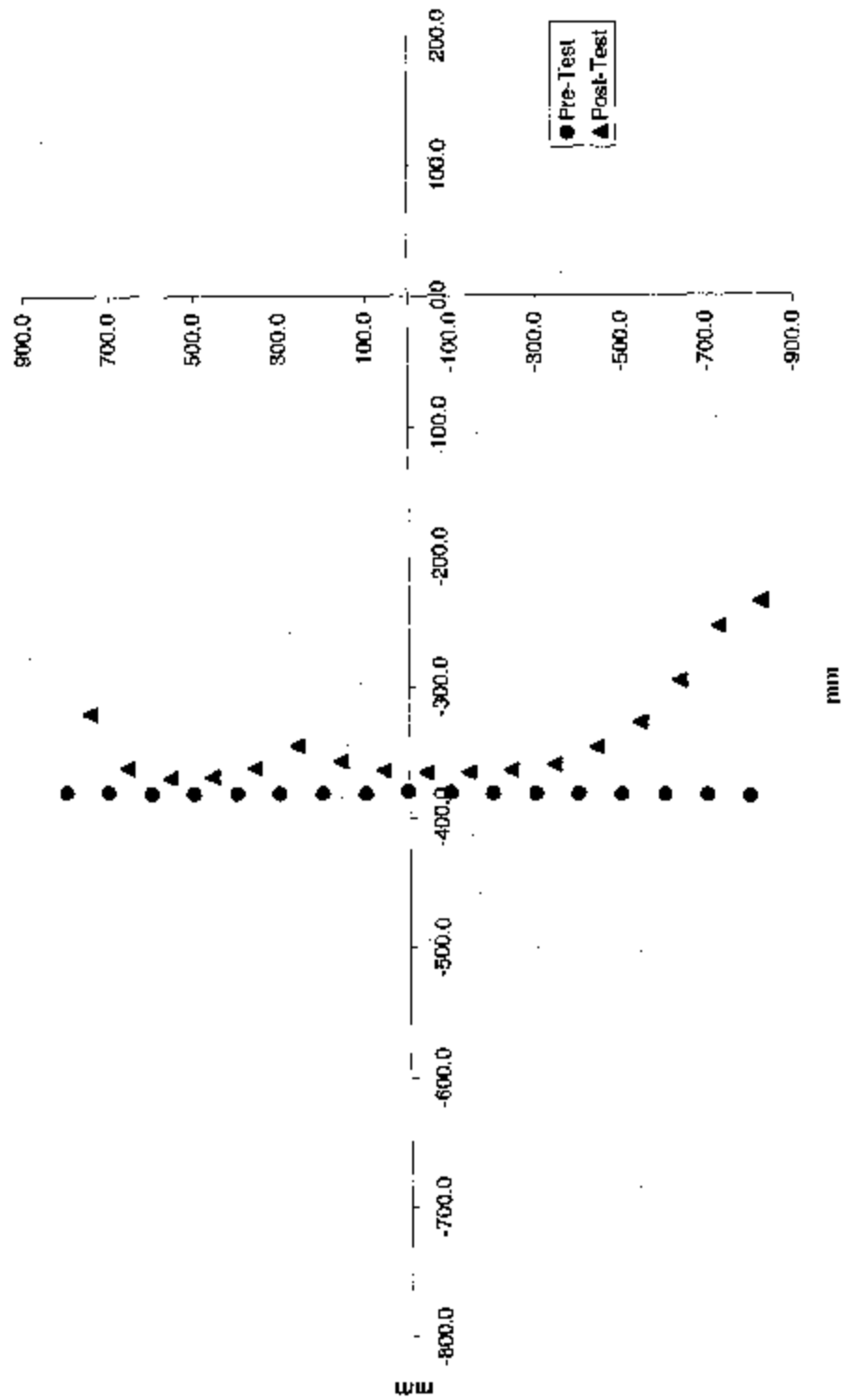
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Level C - Deformable Barrier Face Profile 18-34



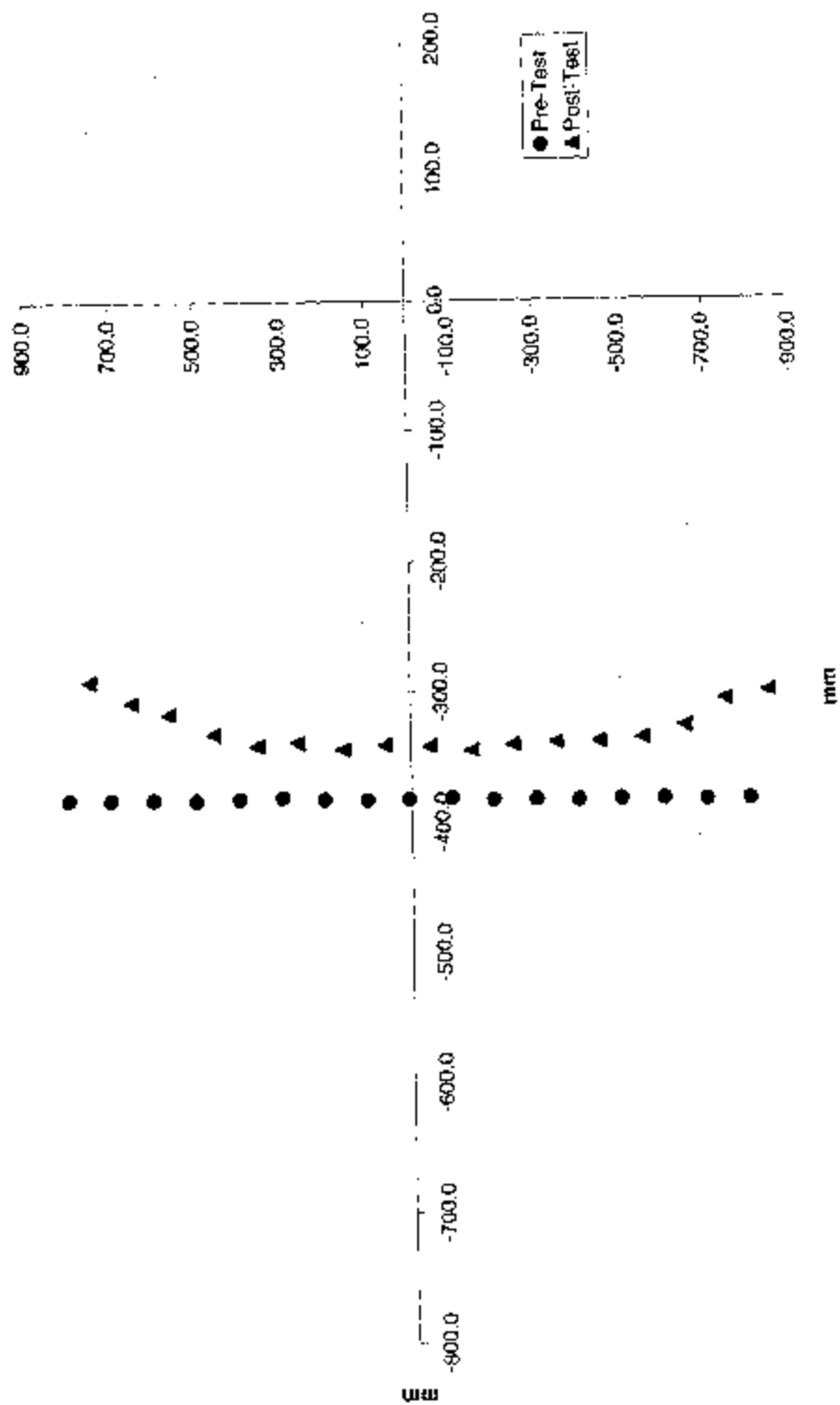
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

NHTSA No.: C30512

Vehicle: 2003 BMW 325i 4-door sedan

Level B - Deformable Barrier Face Profile 35-51



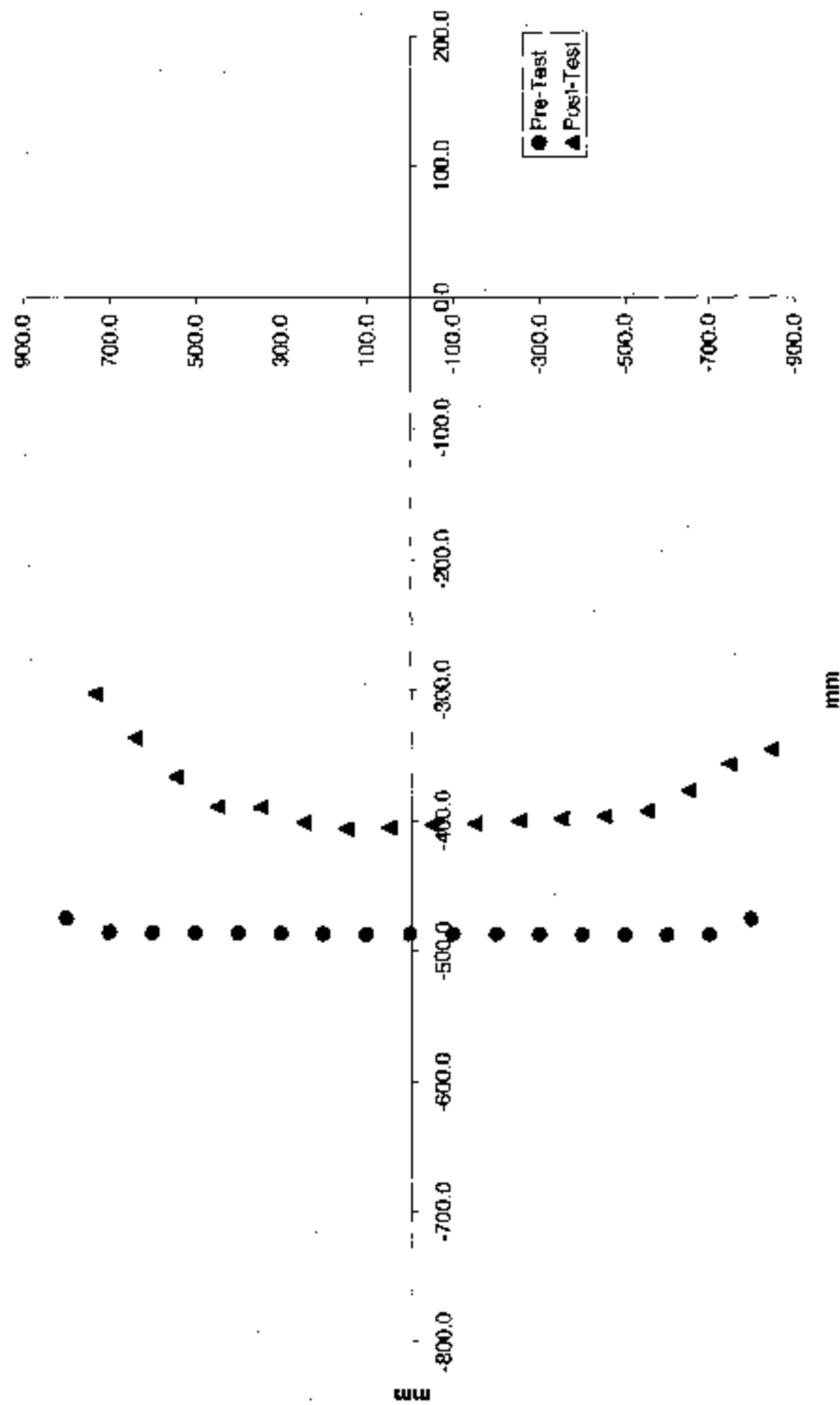
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Level A - Deformable Barrier Face Profile 52-68



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test				Post-Test				Difference			
Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm	Index	Xmm	Ymm	Zmm
1	-381	800	-36	1	-315	744	-81	1	-66	56	45
2	-379	700	-37	2	-360	657	-79	2	-19	43	42
3	-380	600	-37	3	-374	559	-79	3	-6	41	42
4	-380	500	-38	4	-372	460	-77	4	-9	40	39
5	-381	400	-39	5	-355	361	-76	5	-26	39	36
6	-381	300	-39	6	-337	263	-74	6	-44	37	35
7	-382	200	-40	7	-350	165	-73	7	-31	35	33
8	-380	101	-40	8	-356	66	-66	8	-24	35	27
9	-382	0	-41	9	-354	-35	-64	9	-27	35	22
10	-382	-100	-42	10	-348	-135	-64	10	-34	35	22
11	-383	-200	-42	11	-339	-235	-60	11	-44	35	18
12	-382	-300	-43	12	-326	-335	-55	12	-56	34	12
13	-382	-400	-43	13	-307	-433	-53	13	-74	33	9
14	-382	-500	-44	14	-280	-529	-54	14	-102	29	10
15	-382	-600	-45	15	-247	-623	-58	15	-135	23	13
16	-382	-700	-45	16	-223	-720	-59	16	-159	20	13
17	-383	-800	-46	17	-203	-818	-58	17	-180	18	12

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-379	803	-166
19	-380	702	-166
20	-380	602	-167
21	-380	502	-168
22	-380	402	-168
23	-380	302	-168
24	-380	202	-169
25	-381	102	-170
26	-379	2	-171
27	-380	-98	-171
28	-381	-198	-172
29	-381	-298	-173
30	-381	-398	-173
31	-382	-498	-174
32	-382	-598	-174
33	-383	-699	-175
34	-383	-798	-175

Post-Test

Index	Xmm	Ymm	Zmm
18	-320	746	-209
19	-361	659	-208
20	-369	559	-207
21	-368	459	-205
22	-361	360	-204
23	-345	260	-201
24	-356	160	-196
25	-363	60	-192
26	-365	-40	-188
27	-365	-141	-183
28	-363	-241	-180
29	-359	-342	-176
30	-346	-442	-175
31	-327	-540	-174
32	-295	-636	-177
33	-253	-726	-184
34	-234	-823	-180

Difference

Index	Xmm	Ymm	Zmm
18	-59	57	43
19	-18	44	42
20	-11	43	40
21	-12	43	38
22	-19	43	36
23	-36	42	33
24	-24	42	27
25	-18	42	22
26	-14	42	17
27	-15	43	12
28	-17	43	8
29	-22	44	4
30	-35	43	2
31	-55	42	0
32	-87	37	2
33	-130	28	9
34	-149	25	5

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-380	802	-291
36	-380	703	-291
37	-380	603	-292
38	-381	502	-293
39	-380	402	-294
40	-379	302	-294
41	-381	202	-294
42	-382	102	-295
43	-381	2	-296
44	-381	-98	-296
45	-382	-198	-297
46	-382	-298	-298
47	-383	-398	-298
48	-383	-498	-299
49	-383	-598	-299
50	-384	-698	-299
51	-384	-798	-300

Post-Test

Index	Xmm	Ymm	Zmm
35	-290	751	-298
36	-306	653	-303
37	-315	565	-313
38	-330	461	-320
39	-340	360	-320
40	-337	265	-320
41	-343	159	-317
42	-340	59	-312
43	-341	-47	-306
44	-345	-146	-300
45	-340	-245	-296
46	-338	-344	-293
47	-338	-446	-291
48	-336	-548	-290
49	-327	-647	-288
50	-307	-744	-289
51	-301	-843	-279

Difference

Index	Xmm	Ymm	Zmm
35	-90	51	7
36	-74	49	12
37	-65	38	21
38	-50	42	28
39	-41	42	26
40	-42	37	26
41	-38	43	23
42	-42	42	17
43	-40	50	10
44	-36	48	3
45	-42	47	-1
46	-44	47	-4
47	-45	48	-7
48	-47	50	-8
49	-55	49	-11
50	-76	45	-10
51	-83	45	-22

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-474	802	-416
53	-484	704	-417
54	-485	604	-418
55	-485	504	-419
56	-485	403	-419
57	-485	304	-420
58	-486	204	-421
59	-486	104	-421
60	-486	3	-423
61	-486	-96	-423
62	-486	-196	-423
63	-487	-297	-425
64	-487	-397	-425
65	-487	-496	-426
66	-487	-597	-426
67	-487	-697	-426
68	-475	-795	-428

Post-Test

Index	Xmm	Ymm	Zmm
52	-302	735	-423
53	-336	643	-429
54	-366	548	-433
55	-389	450	-435
56	-390	350	-433
57	-402	251	-435
58	-406	151	-434
59	-405	52	-432
60	-403	-49	-431
61	-402	-148	-429
62	-401	-249	-426
63	-399	-349	-425
64	-397	-449	-423
65	-393	-548	-421
66	-378	-647	-416
67	-357	-746	-411
68	-345	-843	-408

Difference

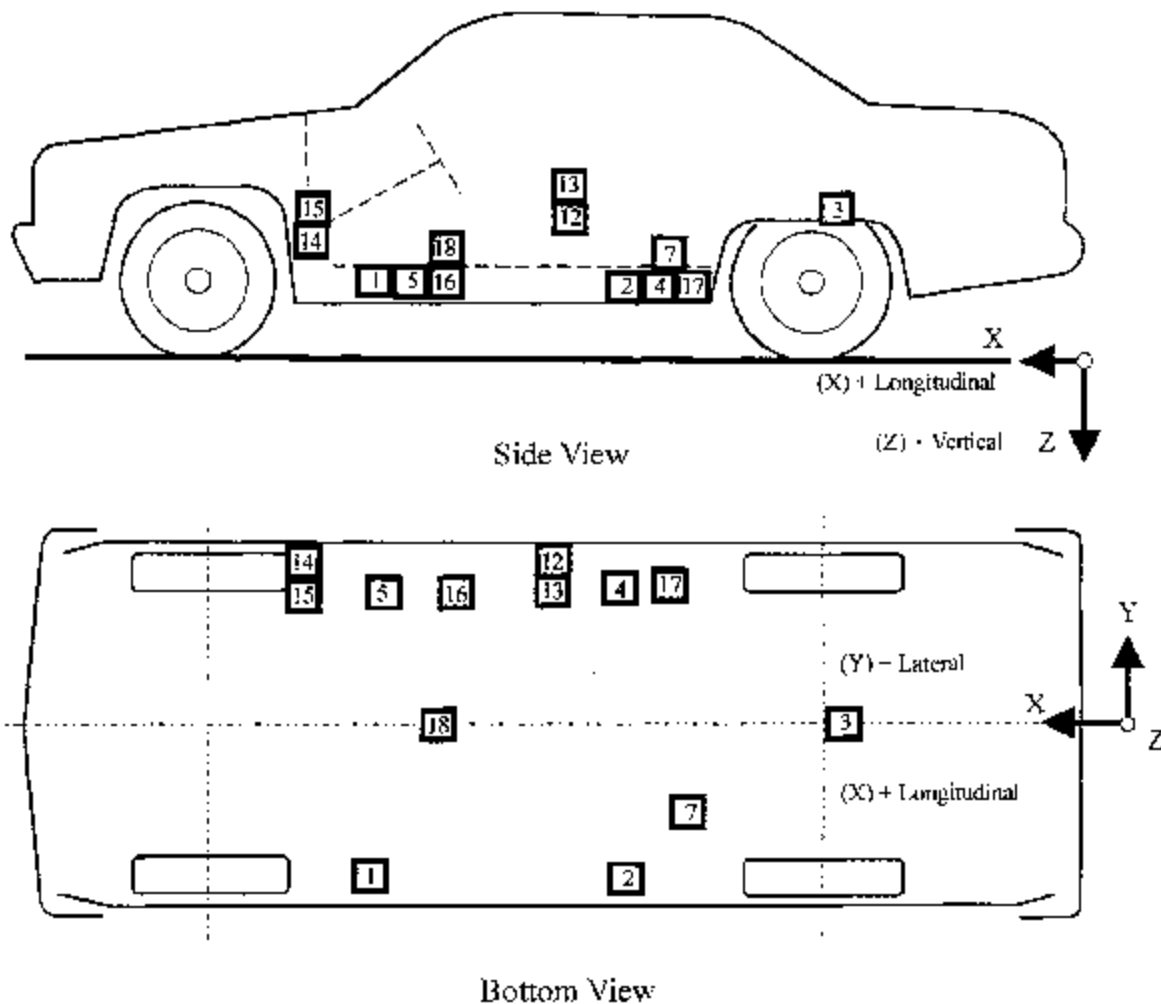
Index	Xmm	Ymm	Zmm
52	-172	66	6
53	-148	61	12
54	-118	56	14
55	-96	53	16
56	-95	53	14
57	-84	53	14
58	-79	52	13
59	-81	52	10
60	-83	52	8
61	-84	52	6
62	-86	52	3
63	-88	52	1
64	-89	52	-2
65	-93	52	-5
66	-109	51	-10
67	-130	49	-15
68	-130	48	-20

Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



- | | |
|----------------------------------------------|----------------------------------------------|
| 1-Right Front Side Sill | 10-Left Rear Door Mid Rear (omitted) |
| 2-Right Side Sill at Rear Seat | 11-Left Rear Door Upper Centerline (omitted) |
| 3-Rear Floorpan above Axle | 12-Left Side Lower B-pillar |
| 4-Left Side Sill at Rear Seat | 13-Left Side Middle B-pillar |
| 5-Left Front Side Sill | 14-Left Side Lower A-pillar |
| 6-Left Front Door on Centerline (omitted) | 15-Left Side Middle A-pillar |
| 7-Right Rear Occupant Compartment | 16-Left Side Front Seat Track at H-point |
| 8-Left Front Door Mid Rear (omitted) | 17-Left Rear Seat Track at H-point |
| 9-Left Front Door Upper Centerline (omitted) | 18-Vehicle Center of Gravity |

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

TEST NUMBER: 030430

No. LOCATION

X

Y

Z

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

1 RIGHT SIDE SILL AT FRONT SEAT LONGITUDINAL LATERAL VERTICAL RESULTANT	2808 mm	700 mm	-251 mm	2.9 g --- 4.3 g ---	@ 53.0 ms --- @ 27.8 ms ---	7.2 g --- 5.6 g ---	@ 20.9 ms --- @ 19.9 ms ---
2 RIGHT SIDE SILL AT REAR SEAT LONGITUDINAL LATERAL VERTICAL RESULTANT	1928 mm	682 mm	-210 mm	3.5 g 20.0 g 6.3 g 20.1 g	@ 52.6 ms @ 8.5 ms @ 35.4 ms @ 8.5 ms	7.3 g 2.0 g 2.4 g	@ 20.9 ms @ 194.7 ms @ 23.8 ms
3 REAR FLOORPAN ABOVE AXLE LONGITUDINAL LATERAL VERTICAL RESULTANT	898 mm	0 mm	-480 mm	1.5 g 17.1 g 5.1 g 17.3 g	@ 113.8 ms @ 28.1 ms @ 44.2 ms @ 27.5 ms	5.5 g 1.8 g 4.7 g	@ 24.2 ms @ 147.4 ms @ 78.0 ms
4 LEFT SIDE SILL AT REAR SEAT LATERAL	1898 mm	-682 mm	-208 mm	58.5 g	@ 7.0 ms	27.2 g	@ 13.9 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

TEST NUMBER: 030430

No. LOCATION

X

Y

Z

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

5 LEFT SIDE SILL
AT FRONT SEAT
LATERAL

2814 mm

-700 mm

-255 mm

7 RIGHT REAR OCCUPANT
COMPARTMENT
LATERAL

1798 mm

410 mm

-217 mm

18.8 g

@ 8.2 ms

1.8 g

@ 194.5 ms

12 LEFT LOWER B-POST
LATERAL

2001 mm

-690 mm

-415 mm

226.3 g

@ 5.2 ms

75.6 g

@ 18.8 ms

13 LEFT MIDDLE B-POST
LATERAL

2003 mm

-690 mm

-815 mm

144.0 g

@ 5.0 ms

49.8 g

@ 25.0 ms

14 LEFT LOWER A-POST
LATERAL

3063 mm

-770 mm

-445 mm

248.8 g

@ 4.0 ms

71.3 g

@ 19.3 ms

15 LEFT MIDDLE A-POST
LATERAL

3043 mm

-770 mm

-772 mm

60.9 g

@ 13.2 ms

21.0 g

@ 20.8 ms

16 LEFT FRONT SEAT TRACK
LATERAL

2279 mm

-711 mm

-345 mm

17 LEFT REAR SEAT TRACK
LATERAL

1678 mm

-710 mm

-420 mm

25.4 g

@ 11.8 ms

2.7 g

@ 190.5 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

TEST NUMBER: 030430

No. LOCATION

	X	Y	Z		POSITIVE DIRECTION	NEGATIVE DIRECTION
18 VEHICLE CENTER OF GRAVITY	2277 mm	0 mm	.475 mm			
LONGITUDINAL				15.8 g	@ 22.7 ms	@ 21.4 ms
LATERAL				194.8 g	@ 24.6 ms	@ 29.2 ms
VERTICAL				59.4 g	@ 25.0 ms	@ 29.6 ms
RESULTANT				203.5 g	@ 24.6 ms	

REFERENCE: X: + FORWARD FROM REAR BUMPER

Y: - RIGHTWARD FROM VEHICLE CENTERLINE

Z: + DOWNWARD FROM GROUND LEVEL

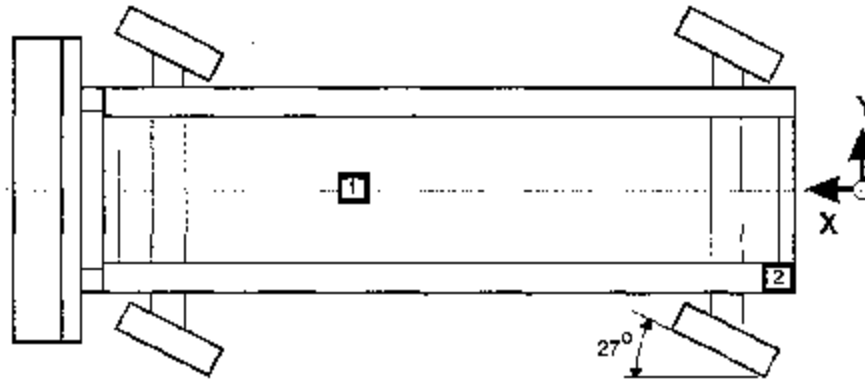
For acceleration data sign convention, see Report Sign Convention in Appendix D.
See DATA ACQUISITION EXPLANATIONS on page 2-3.

Data Sheet 14

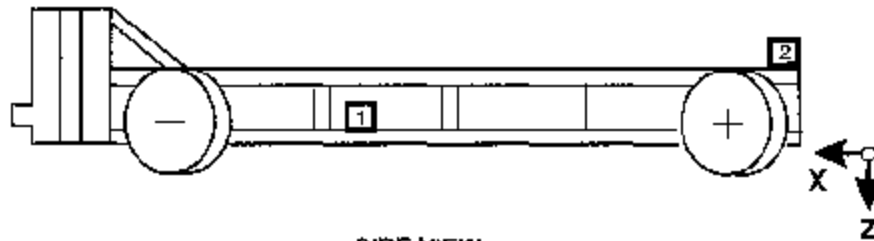
MDB Accelerometer Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1855	0	-520				
	Longitudinal X				2.7	145.0	-22.4	37.2
	Lateral Y				5.8	78.9	-12.0	26.6
	Vertical Z				4.8	231.0	-9.1	23.0
	Resultant R				23.4	36.6		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				3.7	120.9	-24.6	33.1
	Lateral Y				3.1	20.3	-3.6	63.4

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

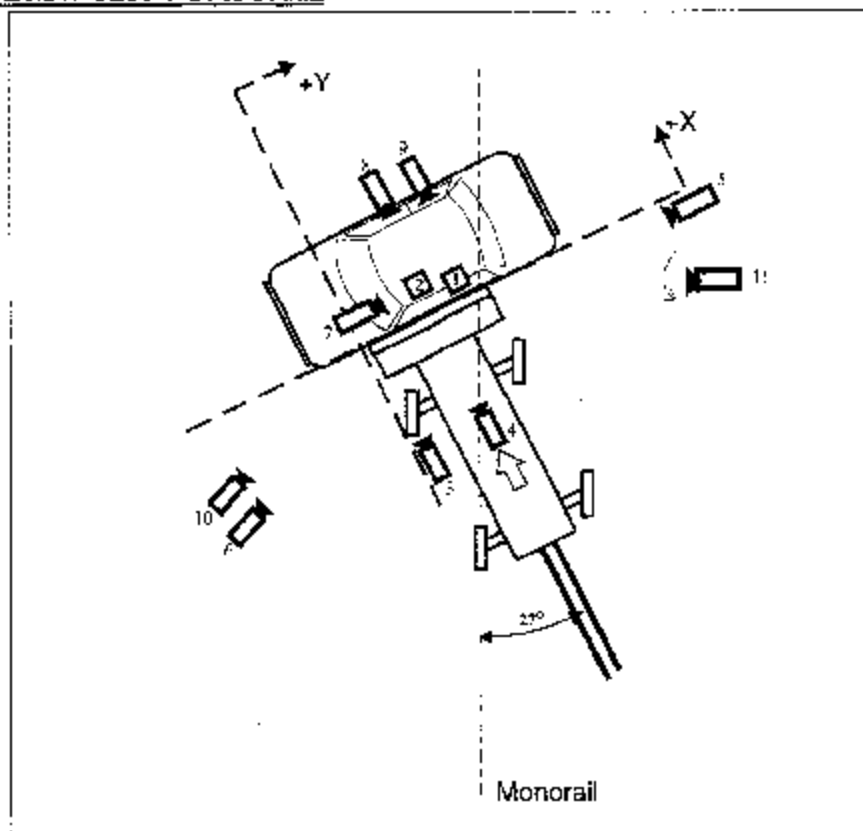
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512



Camera Number	Location	Location, mm			Lens		Speed (fps)
		X	Y	Z	(deg)	(mm)	
1	Overhead wide	250	2150	-5750	-79.1	8.5	1035
2	Overhead tight	370	1800	-5750	-85.5	17	N/A ¹
3	Onboard MDB left side	-1750	-40	-720	-0.5	13	1025
4	Onboard MDB center	-2480	830	-1353	-5.1	25	1000
5	Right side of MDB	0	10,350	-1120	0.8	13	1005
6	Left side of MDB	-1750	-6200	-1100	-2.0	13	N/A ²
7	Onboard vehicle front	550	-270	-1130	-11.0	8	385
8	Onboard side front door	1657	800	-1020	-3.2	8	N/A ³
9	Onboard side rear door	1552	1670	-1030	-5.9	8	N/A ³
10	Digital overall event	-1500	-6500	-1150	-1.7	13	N/A ³
11	Real-time Panning-Video	N/A	N/A	N/A	N/A	Zoom	30

-X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

¹ No LEDs (camera was set to run at 1000 frames/sec).

² Camera too slow to time.

³ Camera did not run.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C30512

Test Date: 4/30/03

Vehicle Year/Make/Model/Body Style: 2003 BMW 325i 4-door sedan

Test Vehicle Impact Type :

- ☐ Frontal (48.28 km/h)
☐ Oblique (48.28 km/h) with ☐° barrier
face first contacting the (driver/passenger) side
☐ Rear Moving Barrier (48.28 km/h)
☐ Lateral Moving Barrier (32.19 km/h)
☒ Side Impact Moving Deformable Barrier
(38.5 mph) contacting the driver's side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

N/A

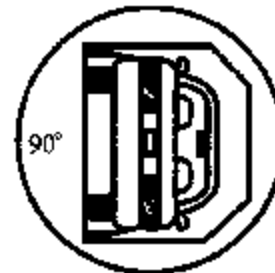
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

Total 6 minutes 30 seconds

Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

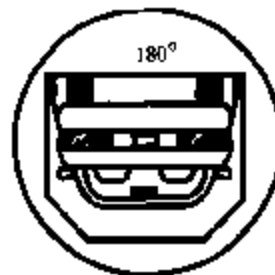
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 6 minutes 30 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

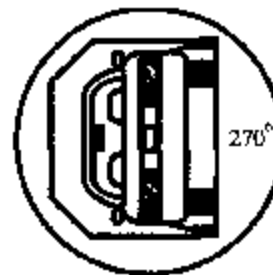
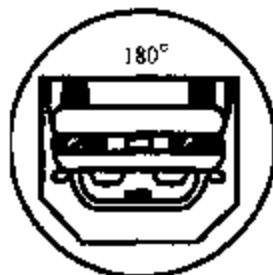
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time ÷ 5 minutes 0 seconds

Total 6 minutes 30 seconds

Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

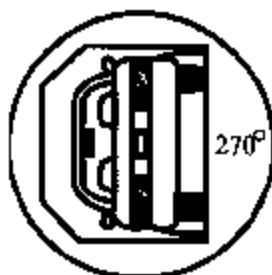
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 BMW 325i 4-door sedan

NHTSA No.: C30512

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 6 minutes 30 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
----------------------------------------	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

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Figure A-1 Pre-Test Front View of Test Vehicle

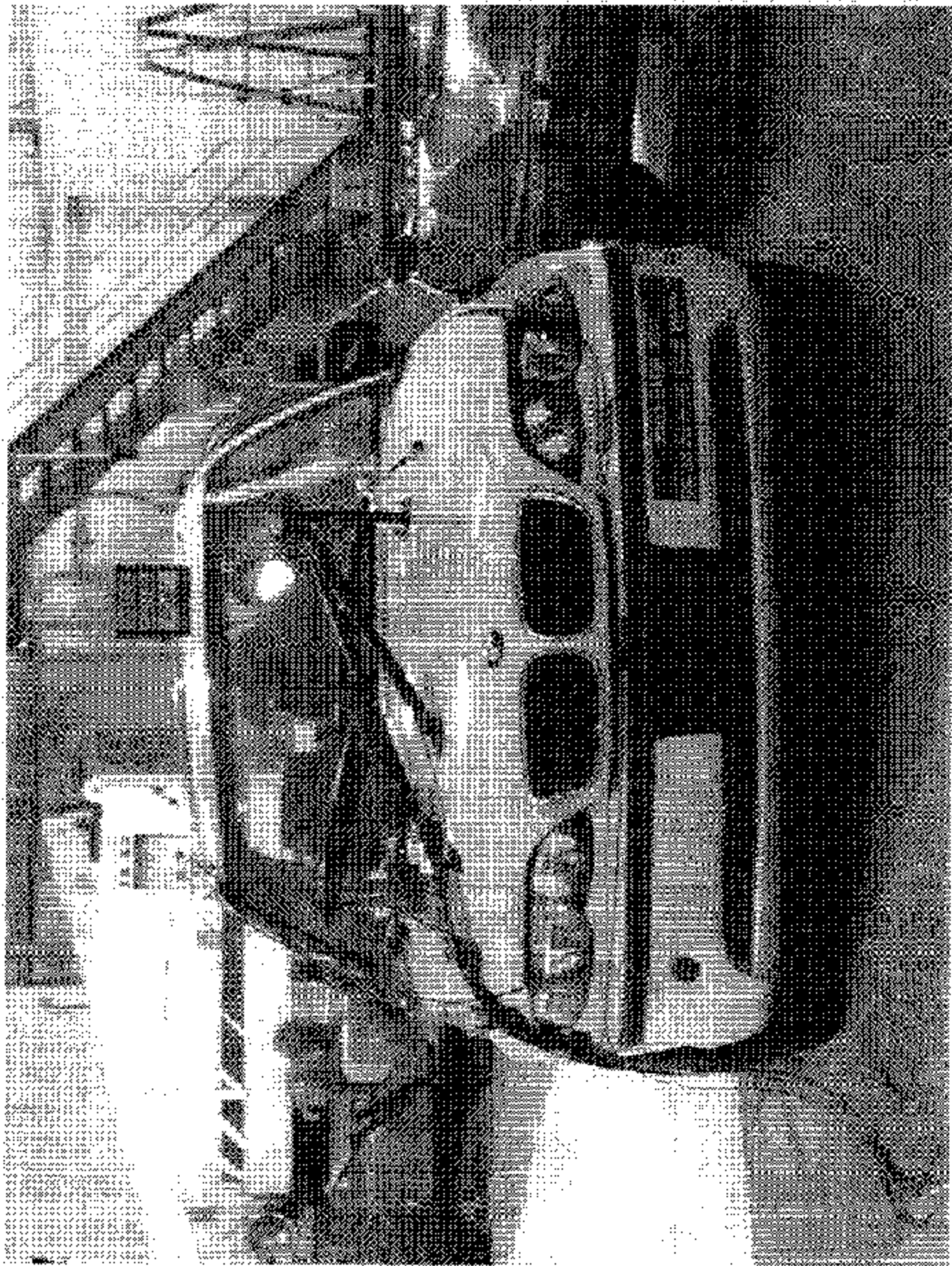


Figure A-2 Post-Test Front View of Test Vehicle

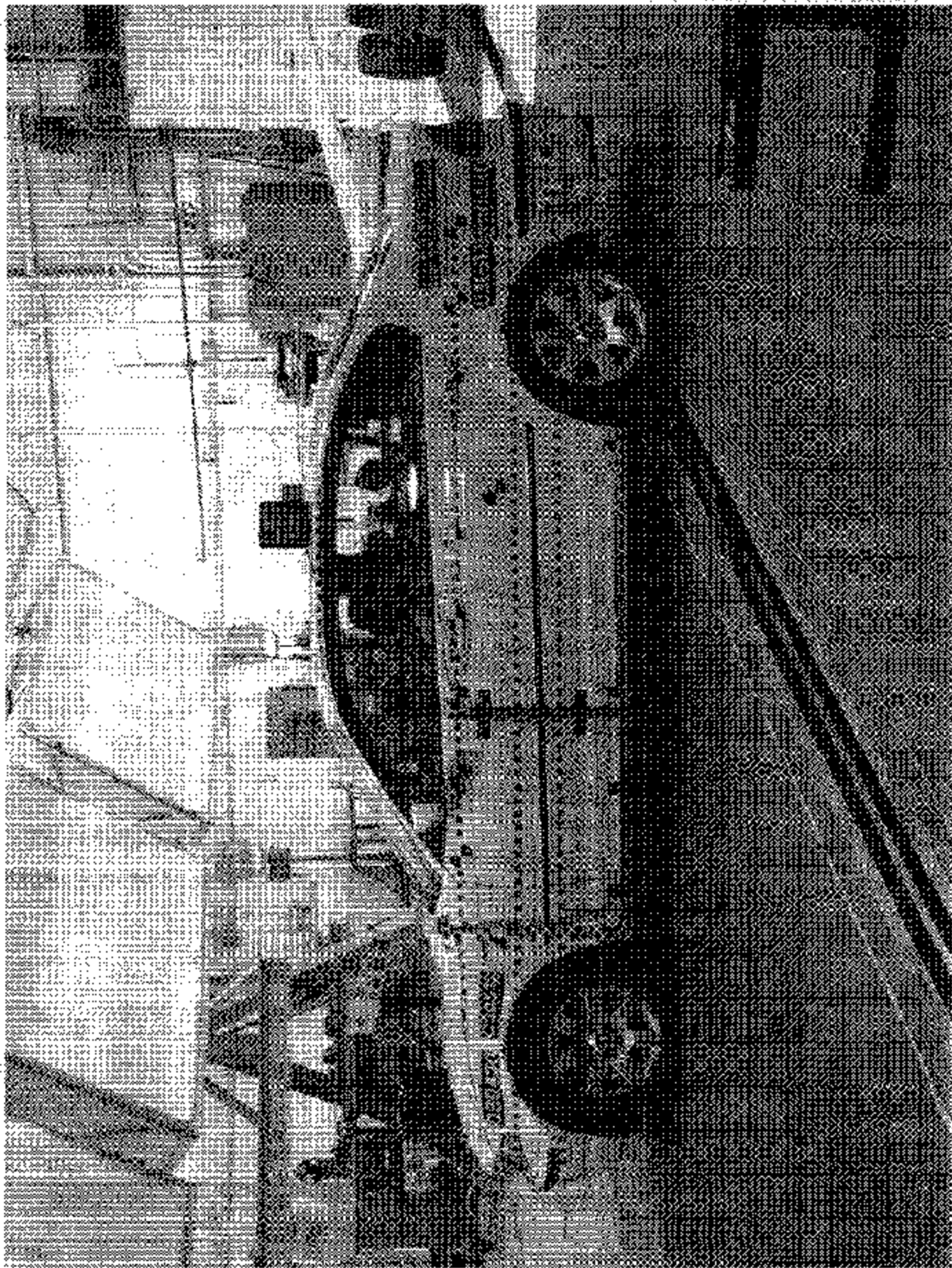


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

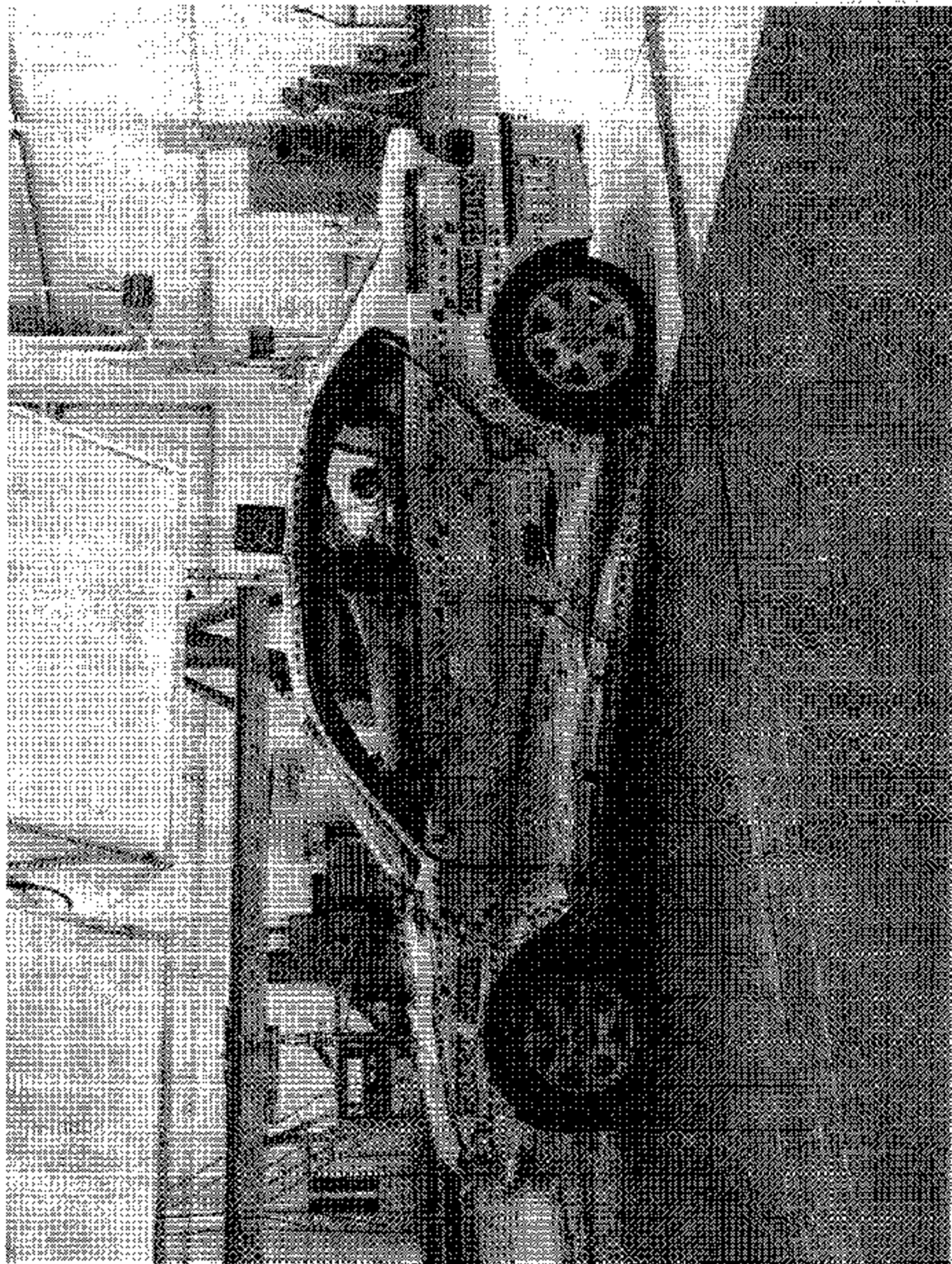


Figure A-4 Post-Test Impacted Side View of Test Vehicle

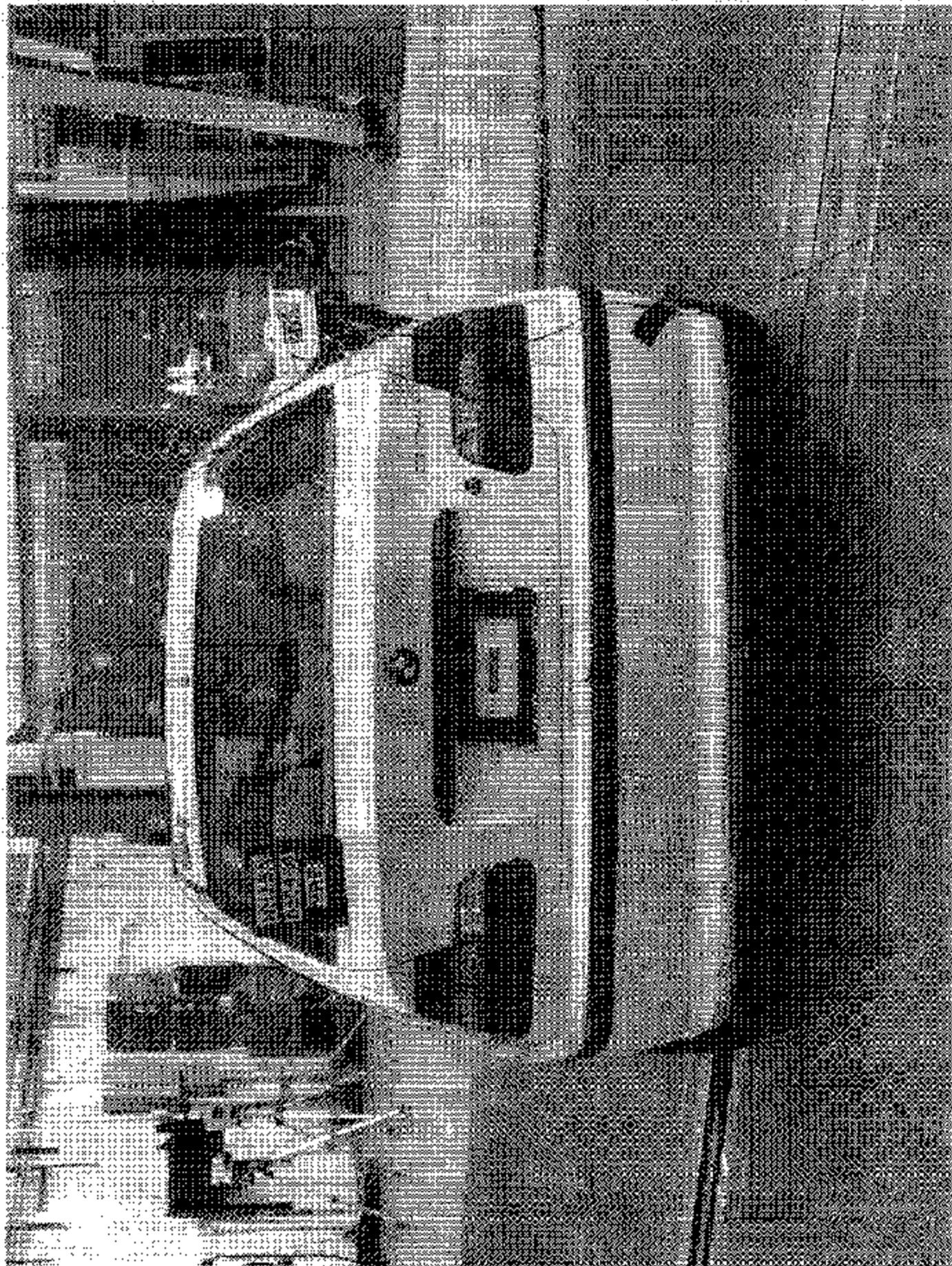


Figure A-5 Pre-Test Rear View of Test Vehicle

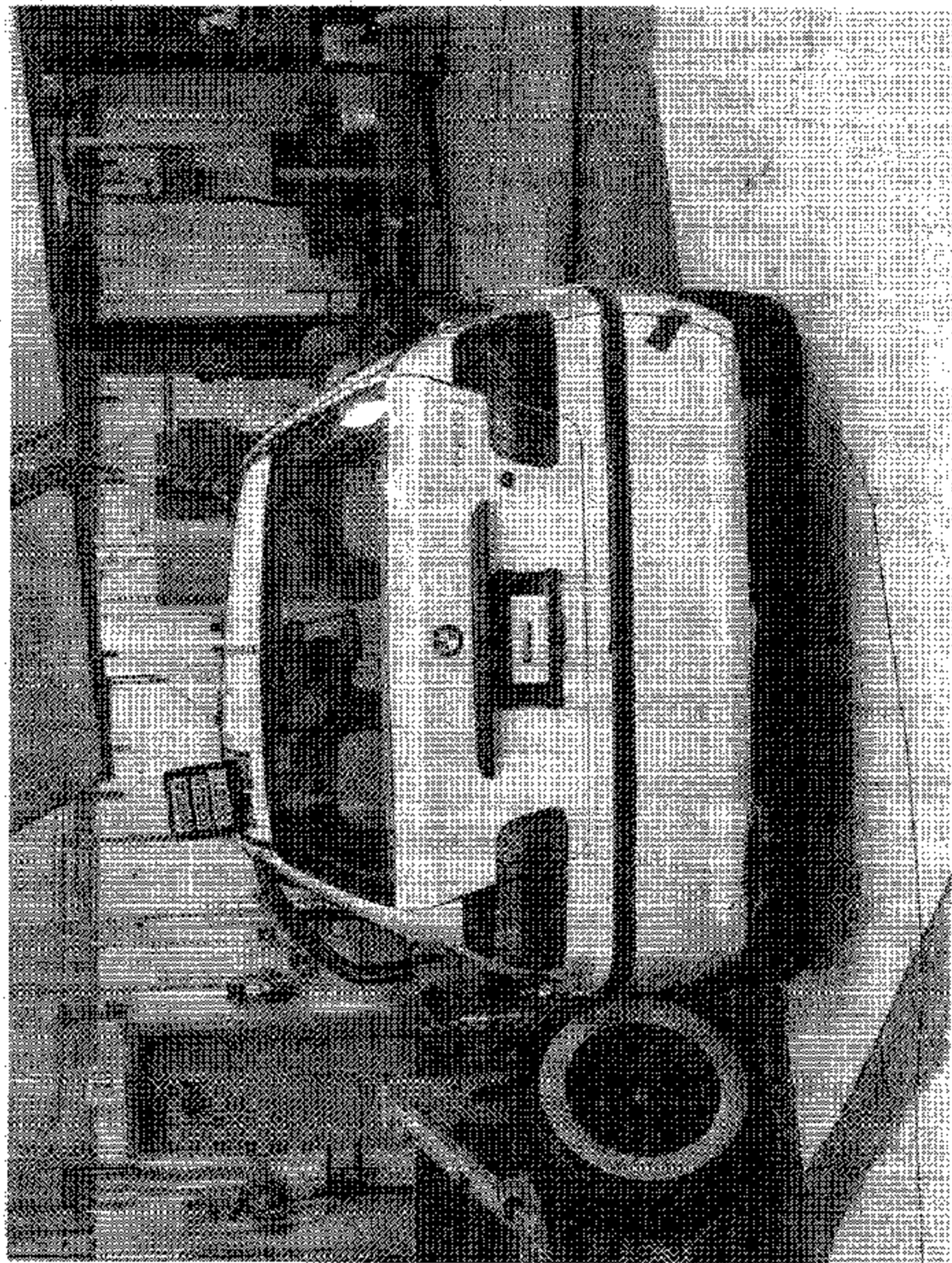


Figure A-6 Post-Test Rear View of Test Vehicle

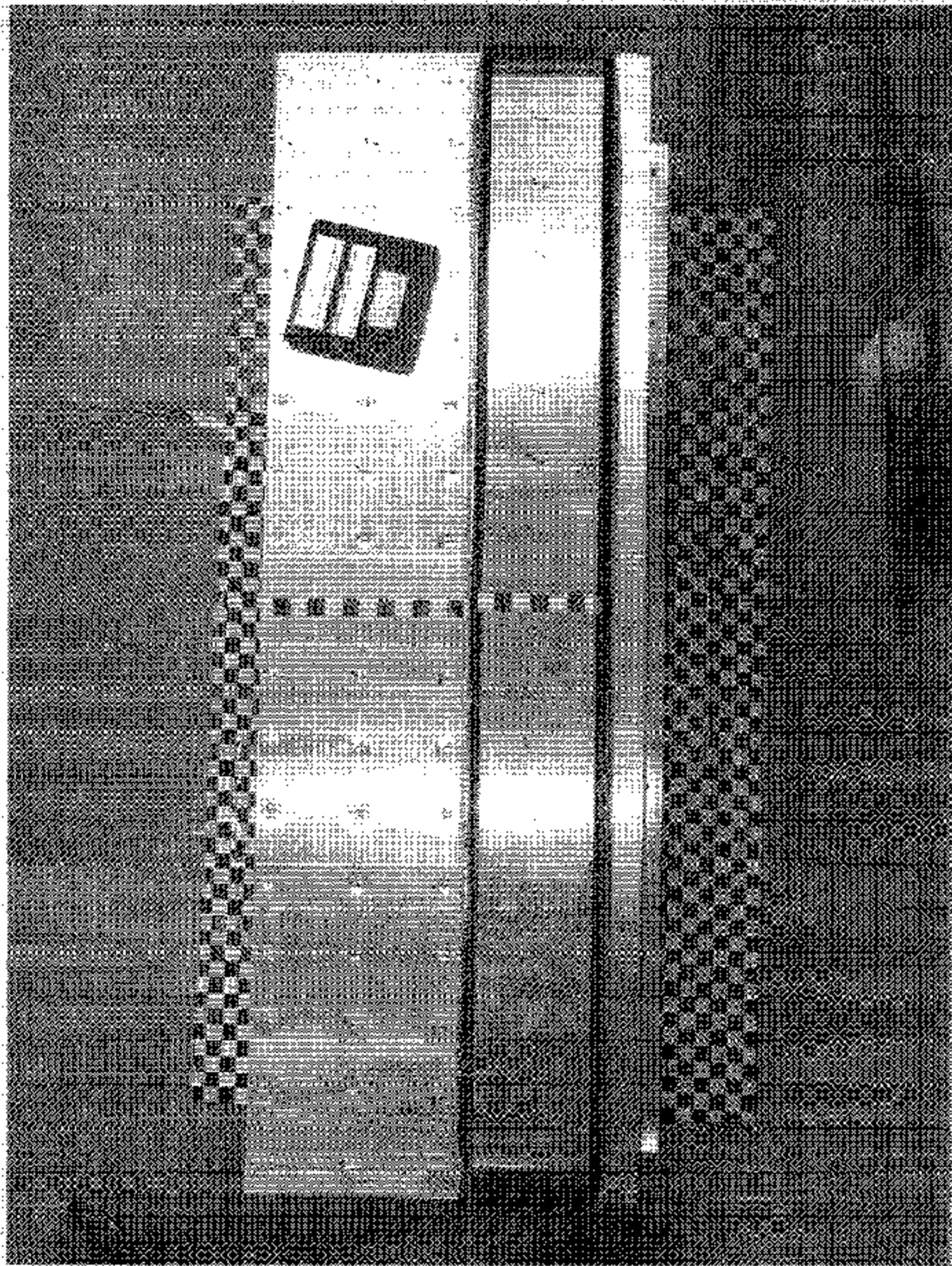


Figure A-7 Pre-Test Frontal View of Impactor Face

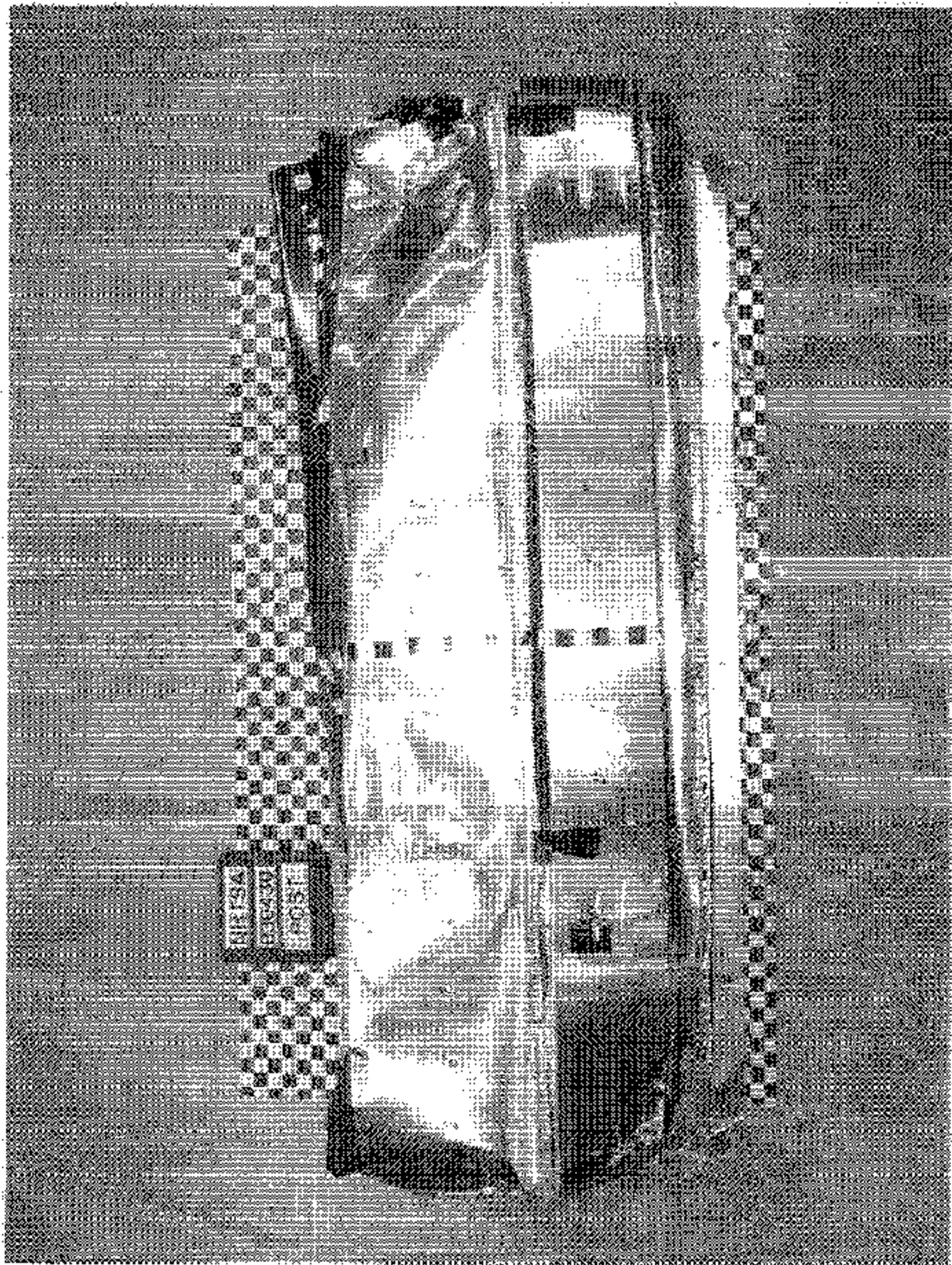


Figure A-8 Post-Test Frontal View of Impactor Face

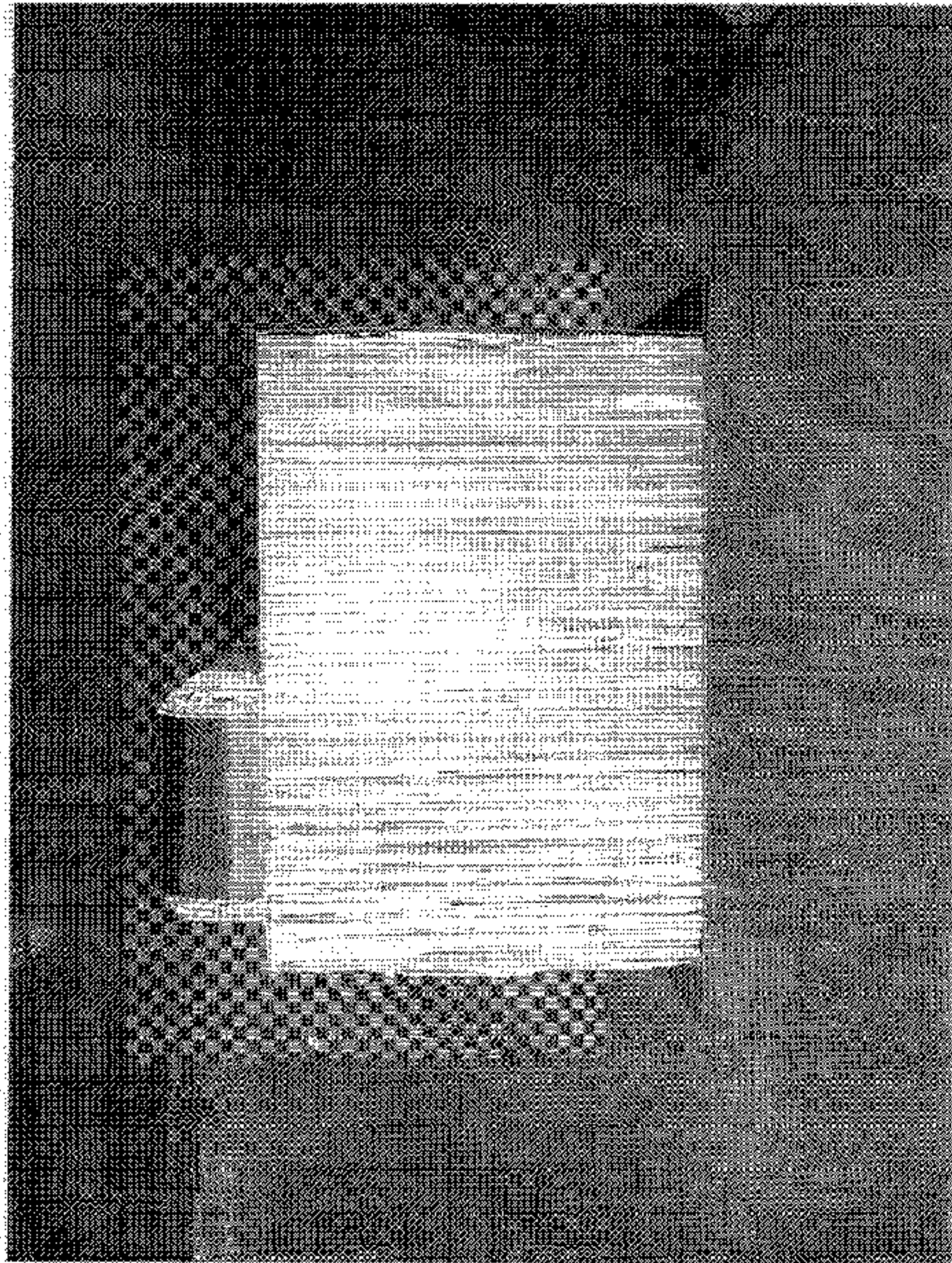


Figure A-9 Pre-Test Left Side View of Impactor Face

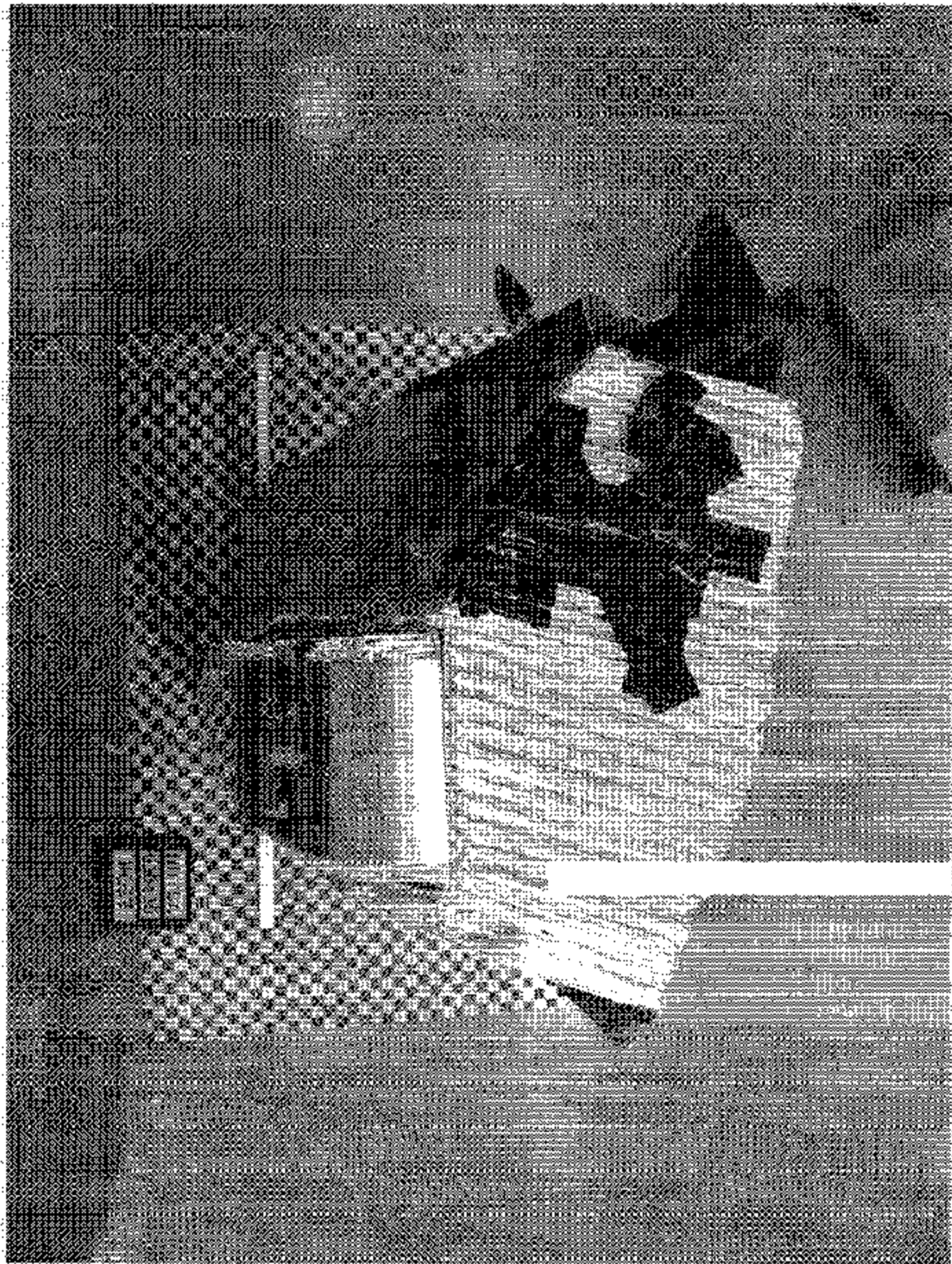


Figure A-10 Post-Test Left Side View of Impactor Face

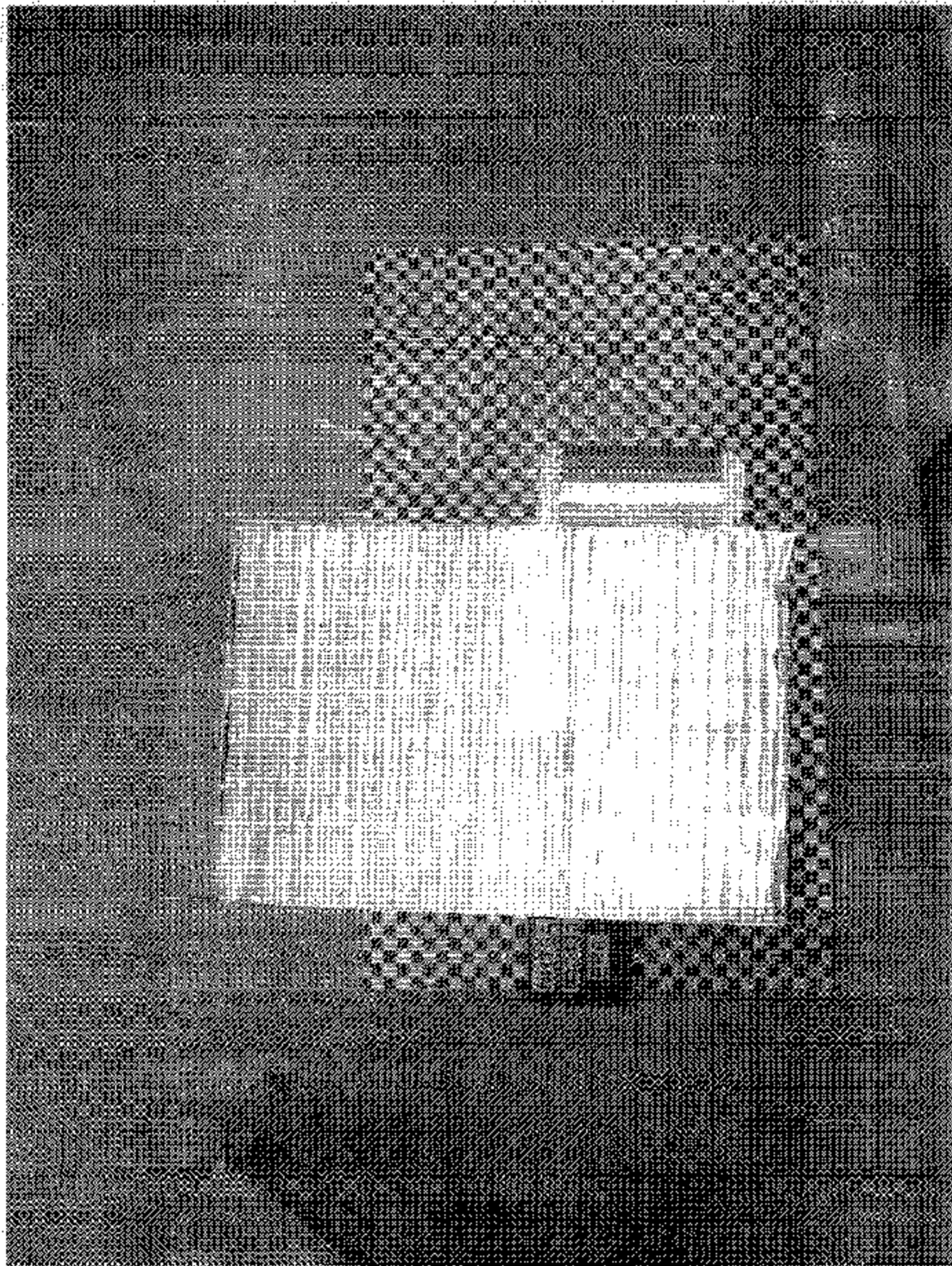


Figure A-11 Pre-Test Right Side View of Impactor Face



Figure A-12 Post-Test Right Side View of Impactor Face

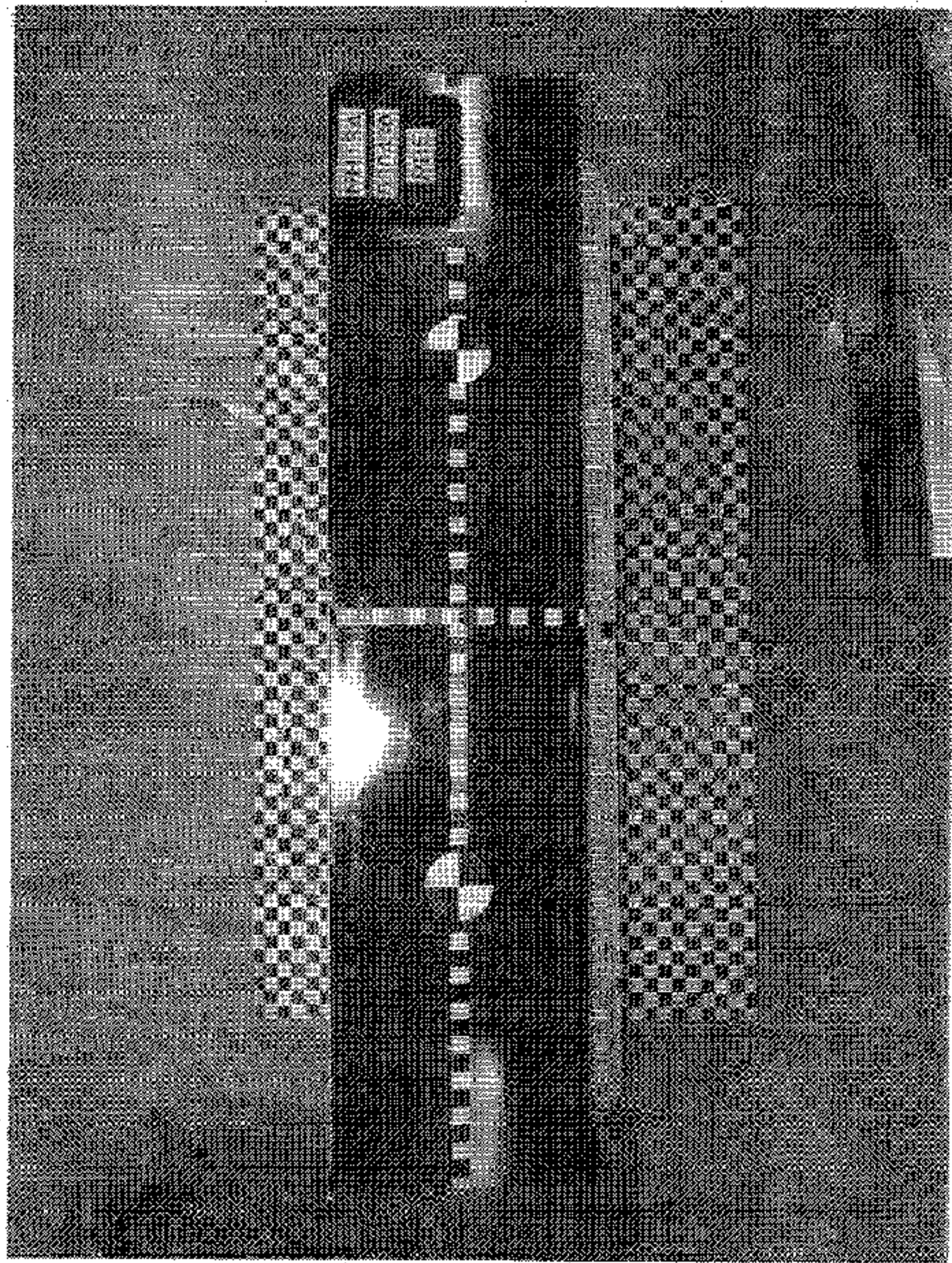


Figure A-13 Pre-Test Top View of Impactor Face

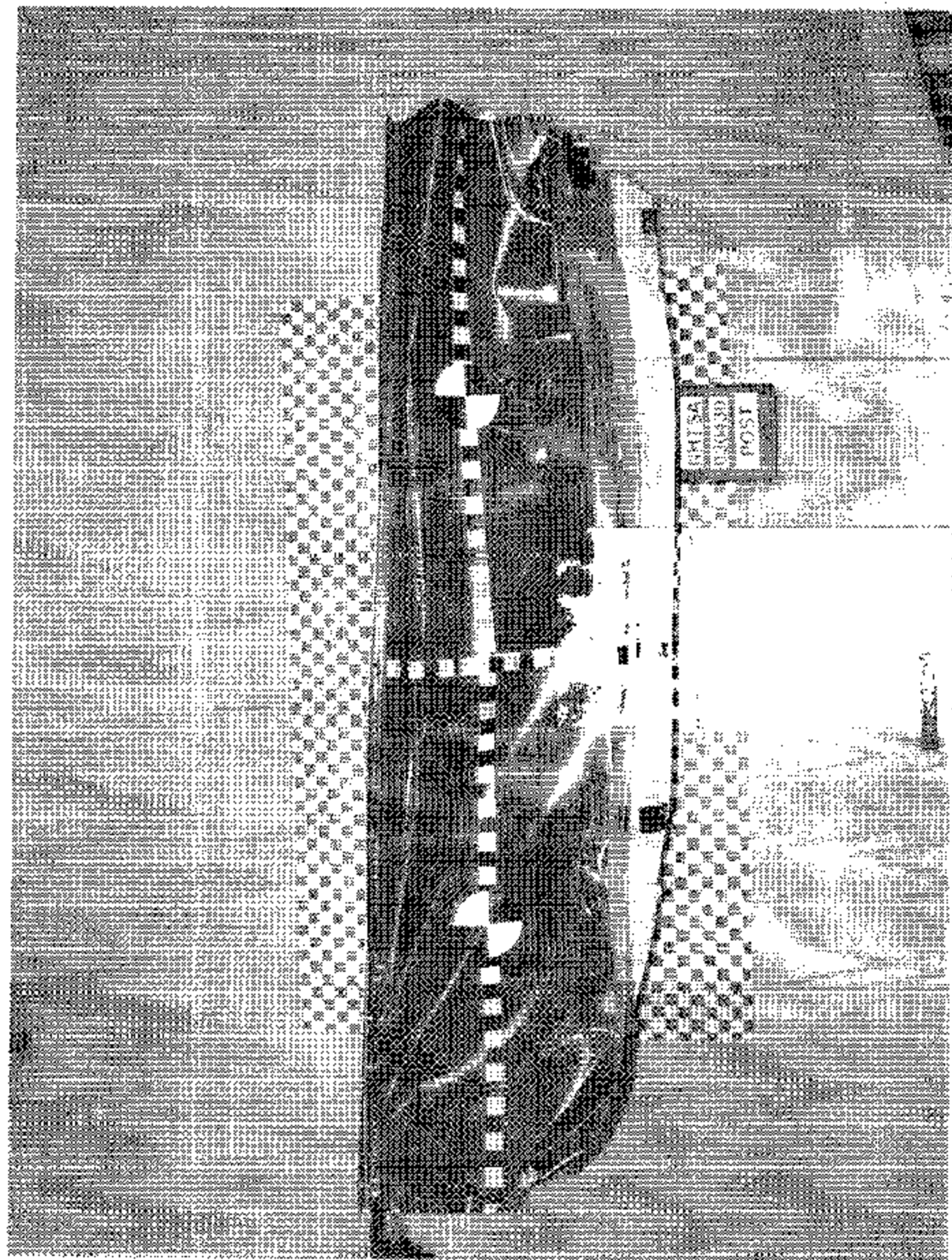


Figure A-14 Post-Test Top View of Impactor Face

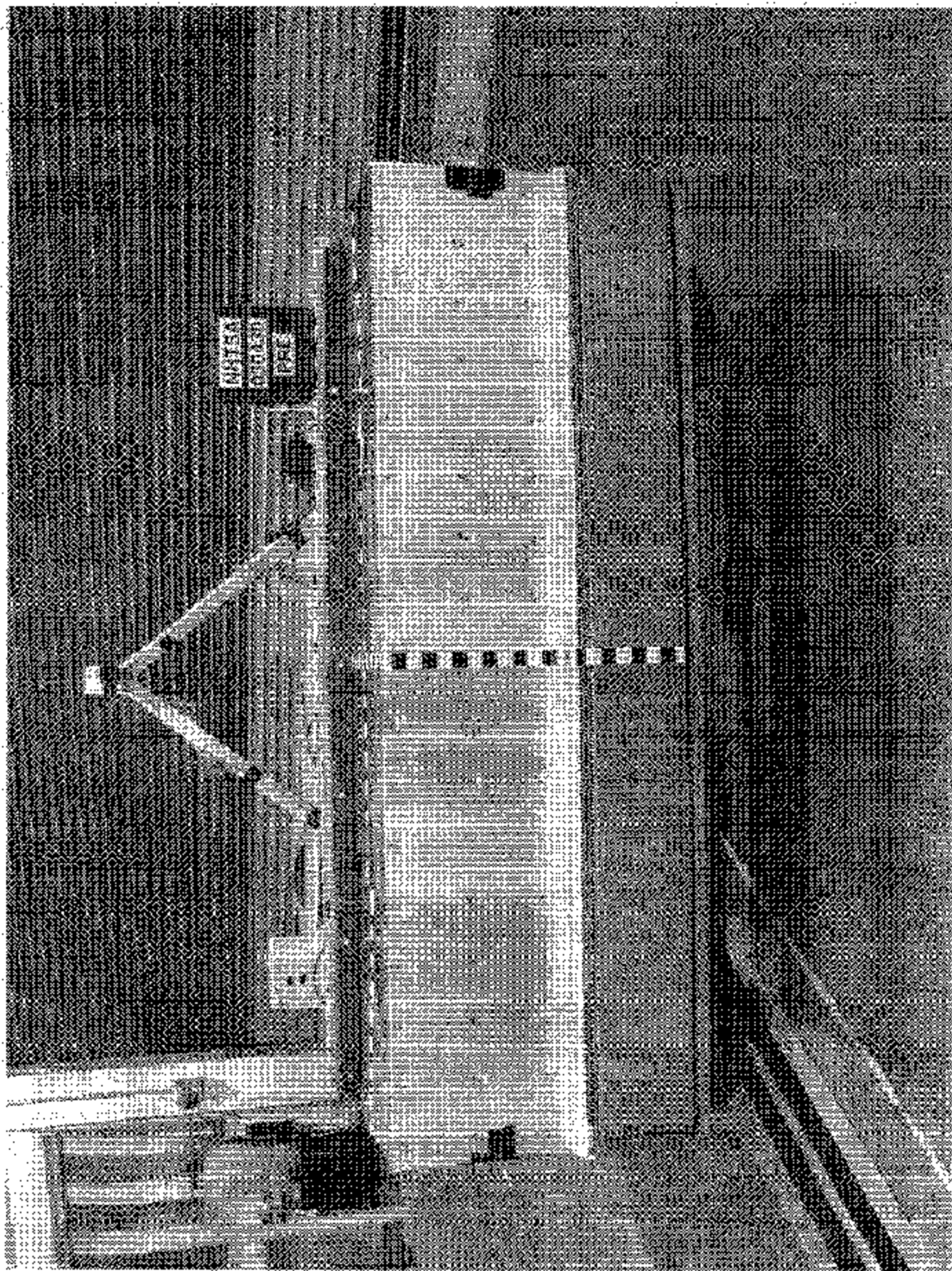


Figure A-15 Pre-Test Frontal View of MDB

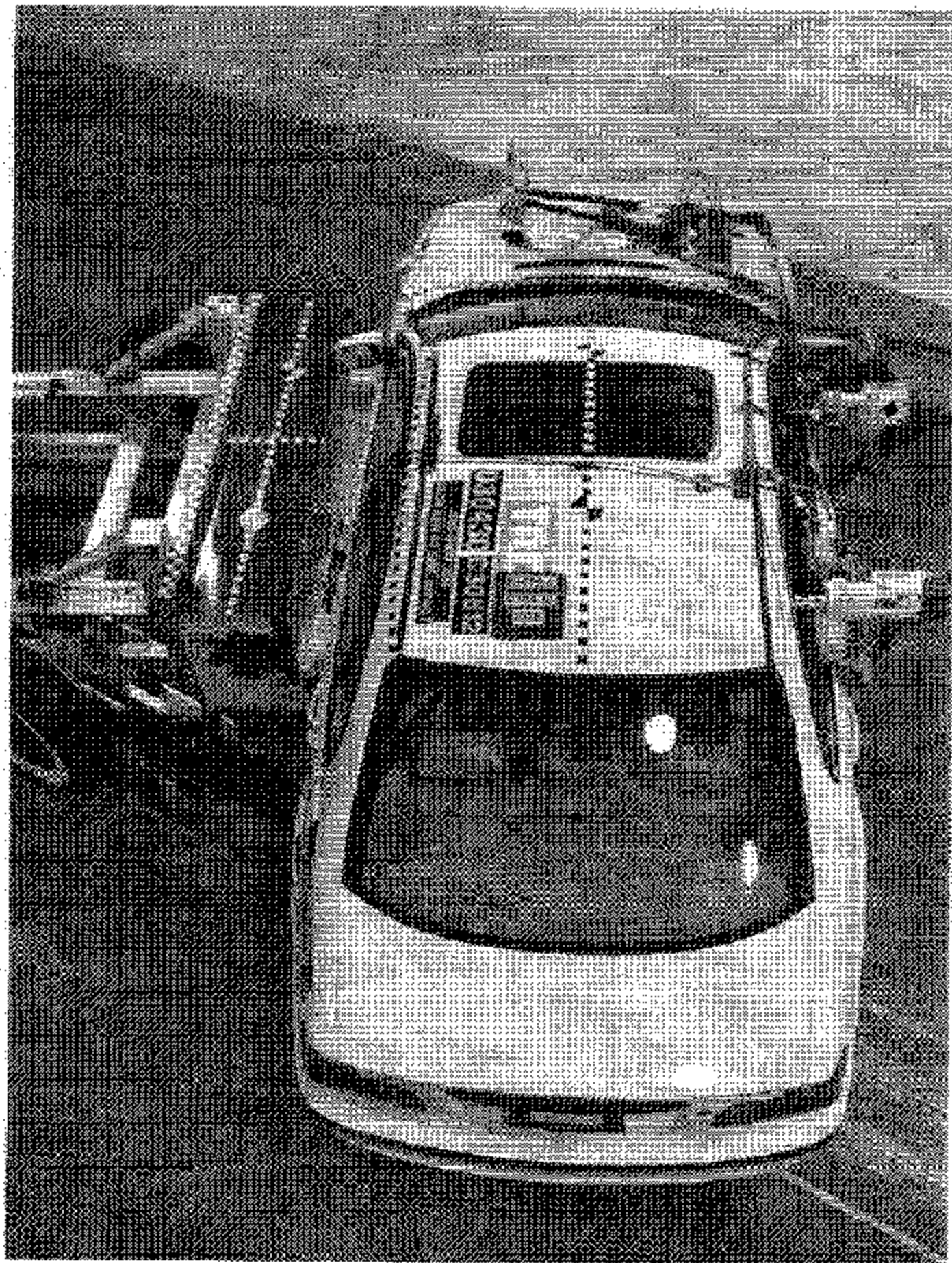


Figure A-16 Pre-Test Overhead View of MDB Aligned with Vehicle



Figure A-17 Post-Test Overhead View of MDB and Vehicle

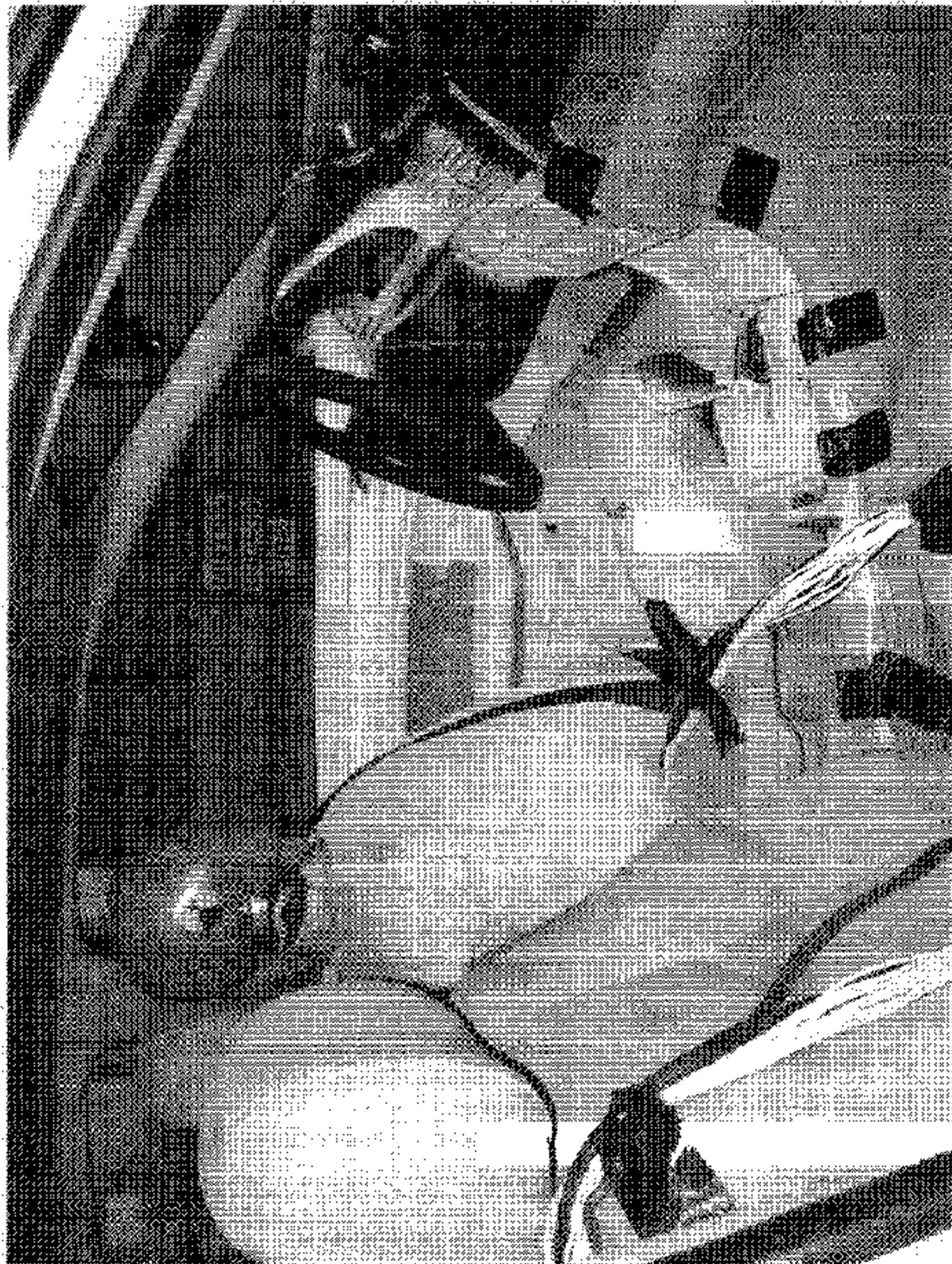


Figure A-18 Pre-Test Right Occupant Compartment View of Front SID

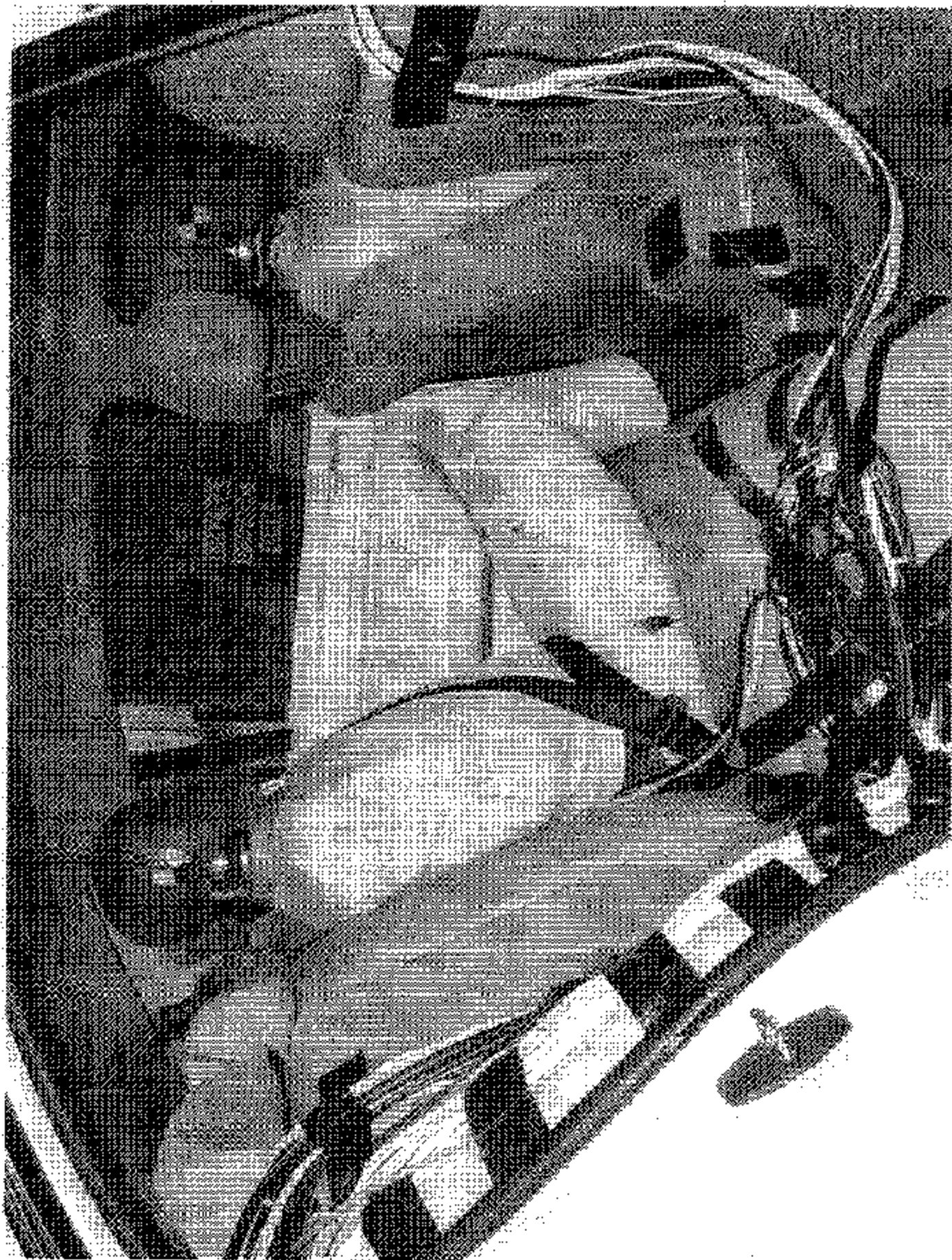


Figure A-19 Pre-Test Right Occupant Compartment View of Rear SID

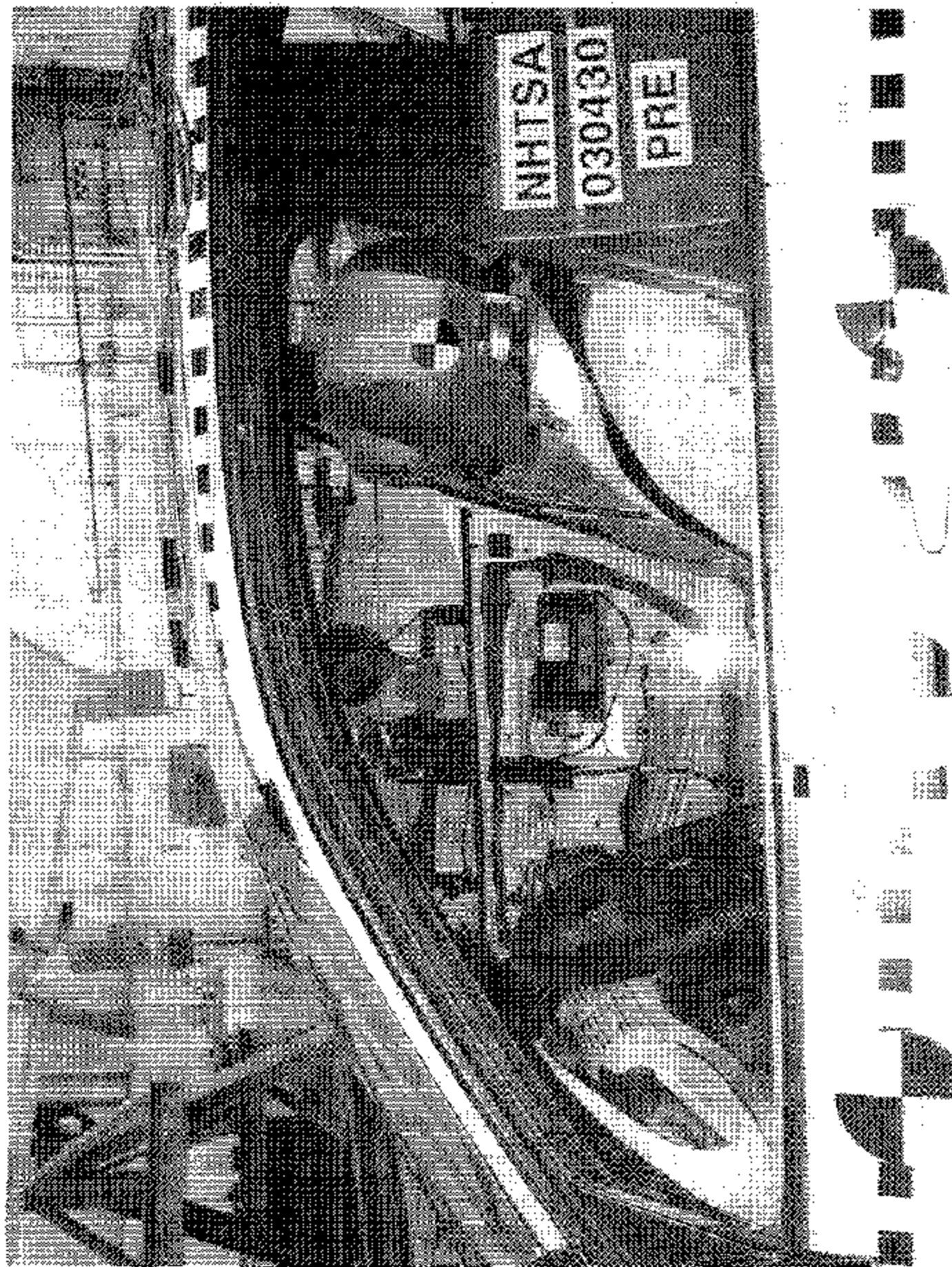


Figure A-20 Pre-Test Left View of Front SID

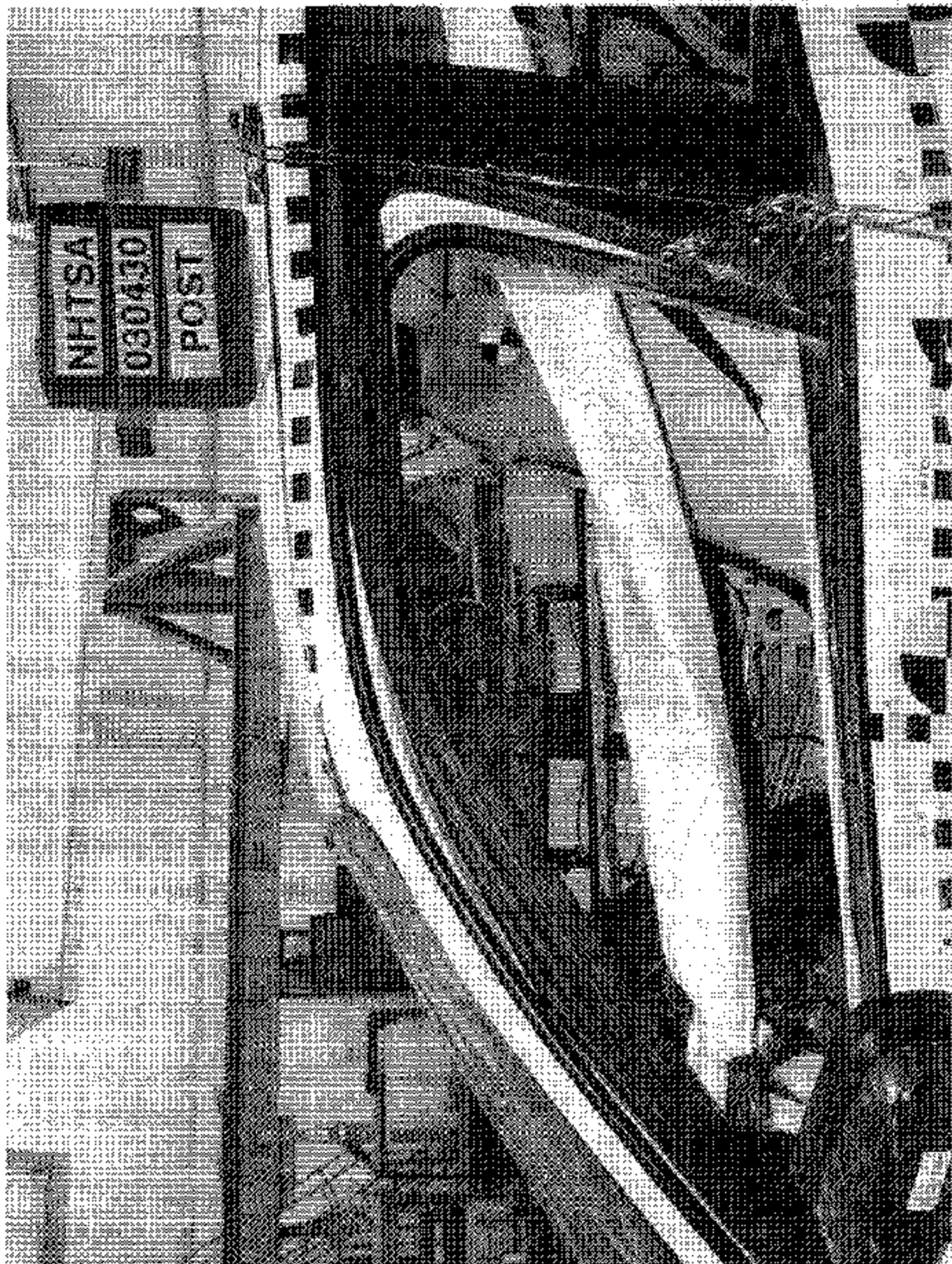


Figure A-21 Post-Test Left View of Front SID

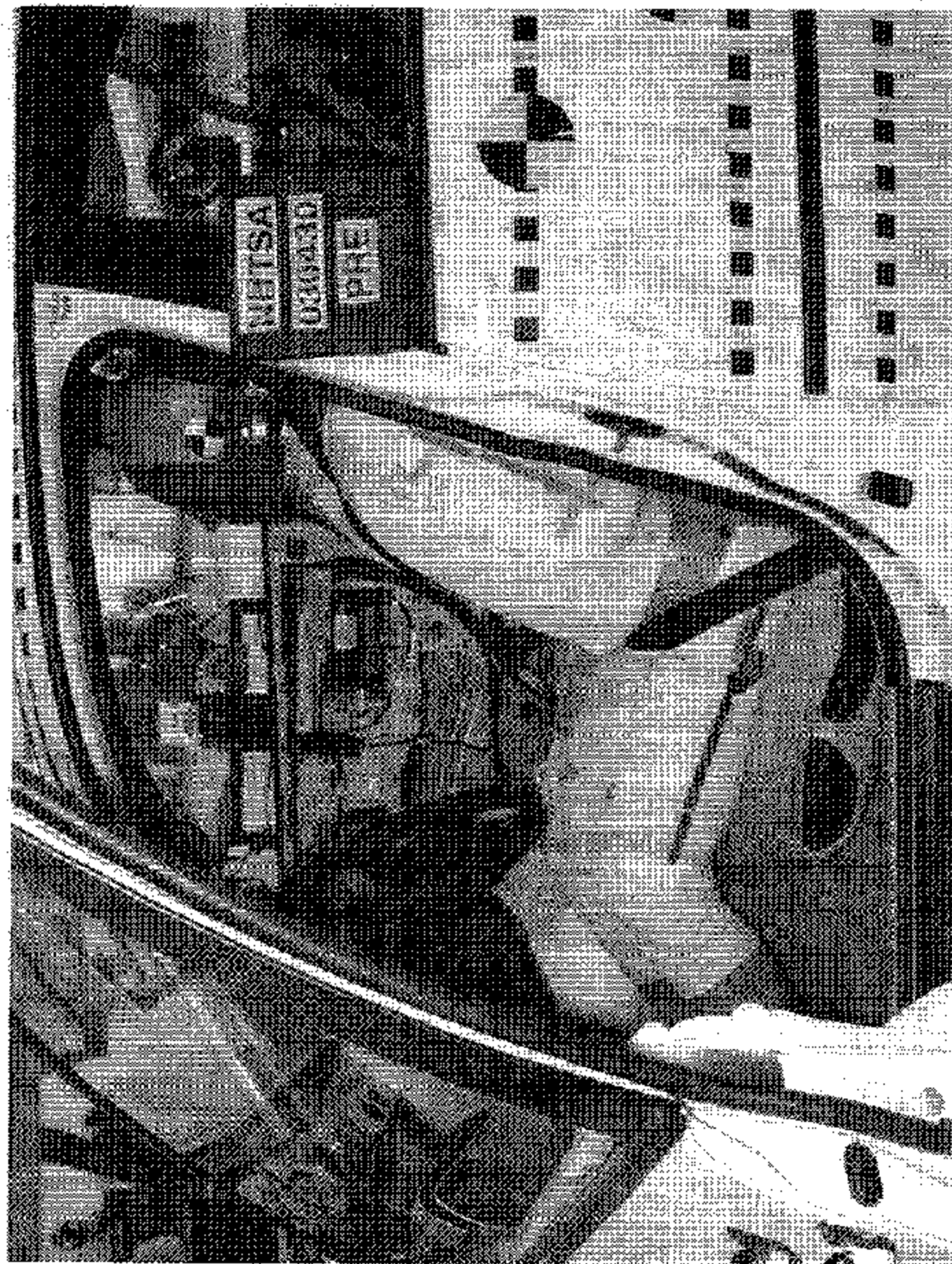


Figure A-22 Pre-Test Left View of Front SID and Belt Position

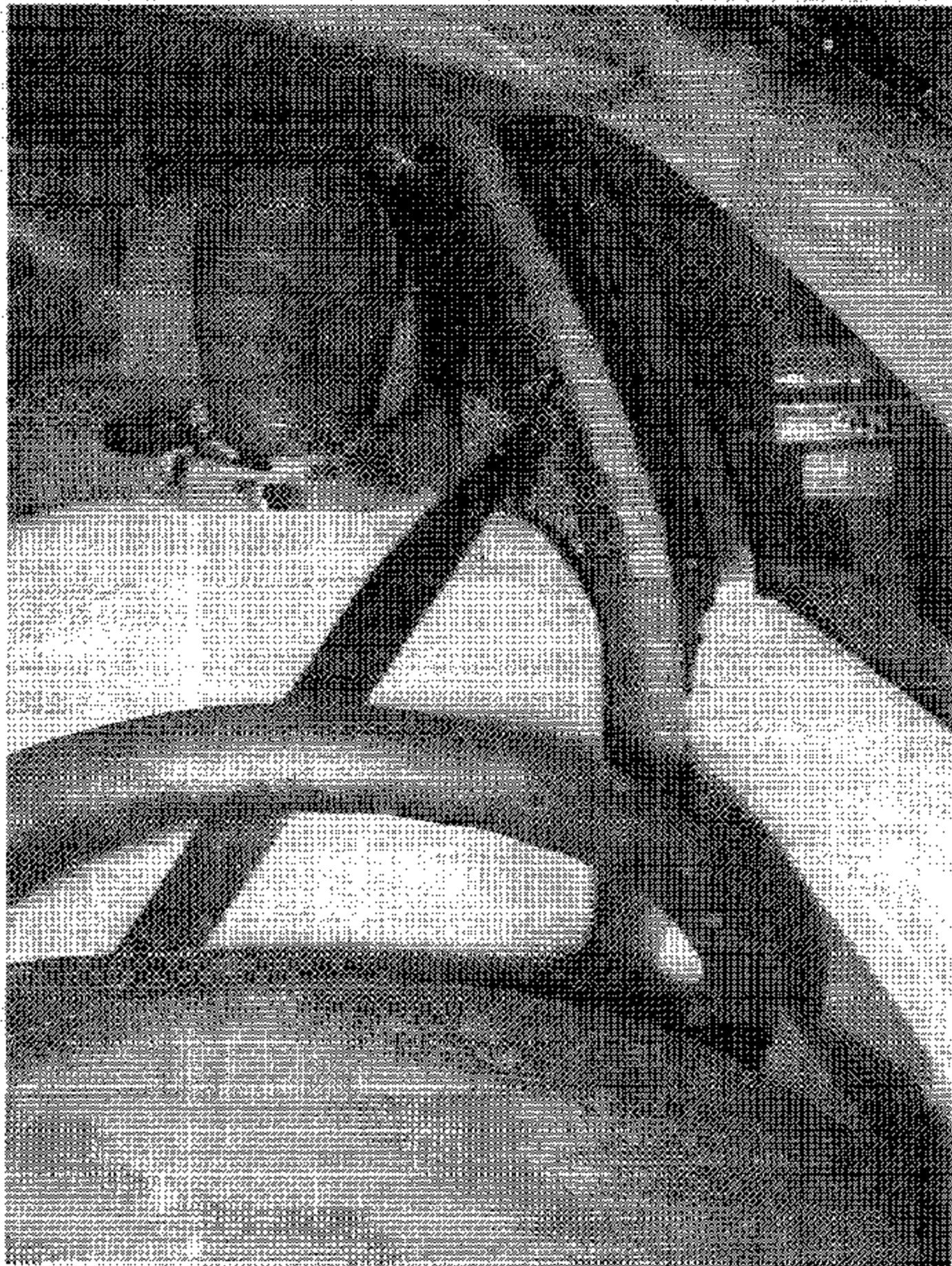


Figure A-23 Pre-Test Left View of Front SID and Door Clearance



Figure A-24 Post-Test Left View of Front SID and Door Clearance

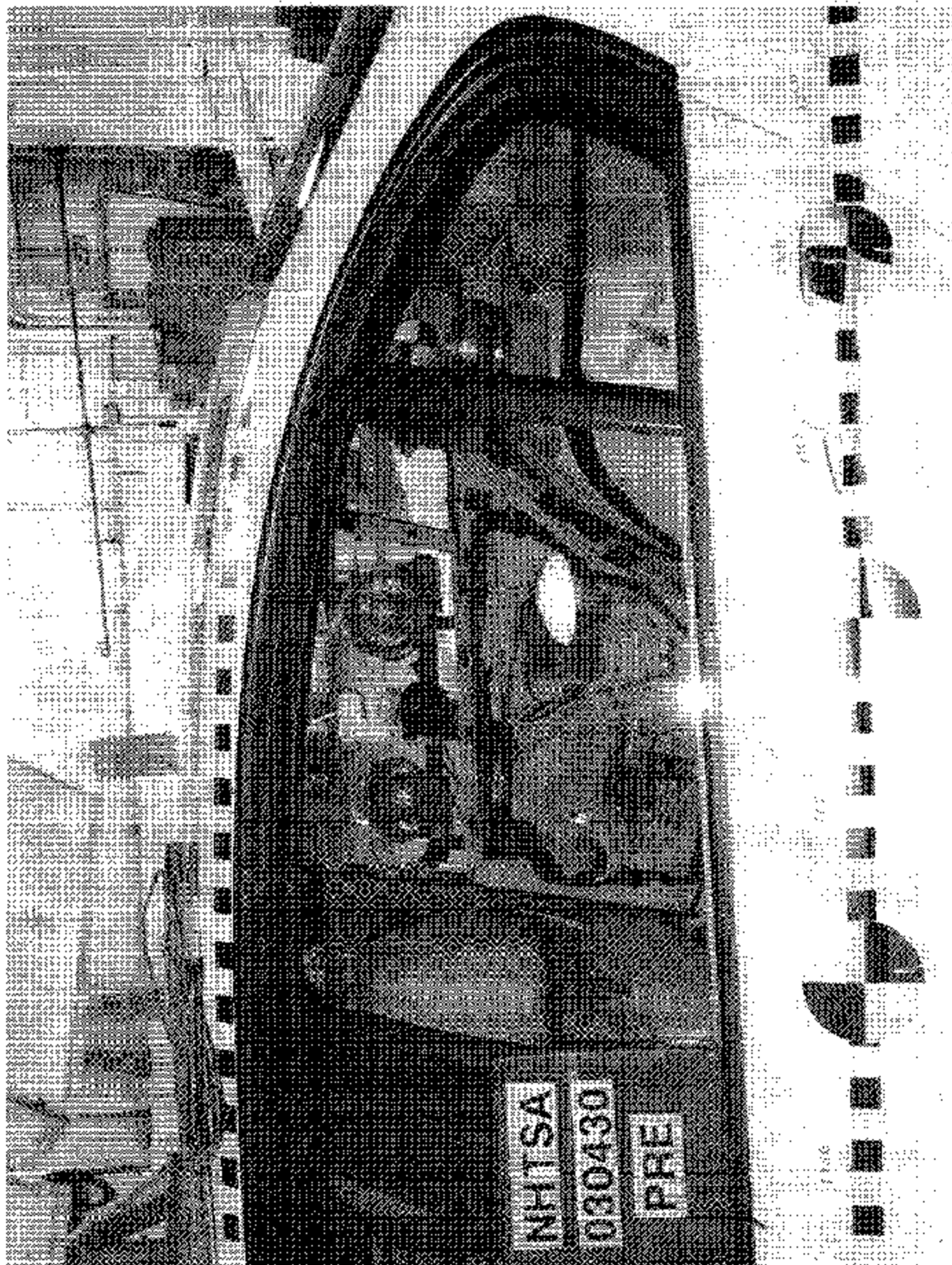


Figure A-25 Pre-Test Left View of Rear SID

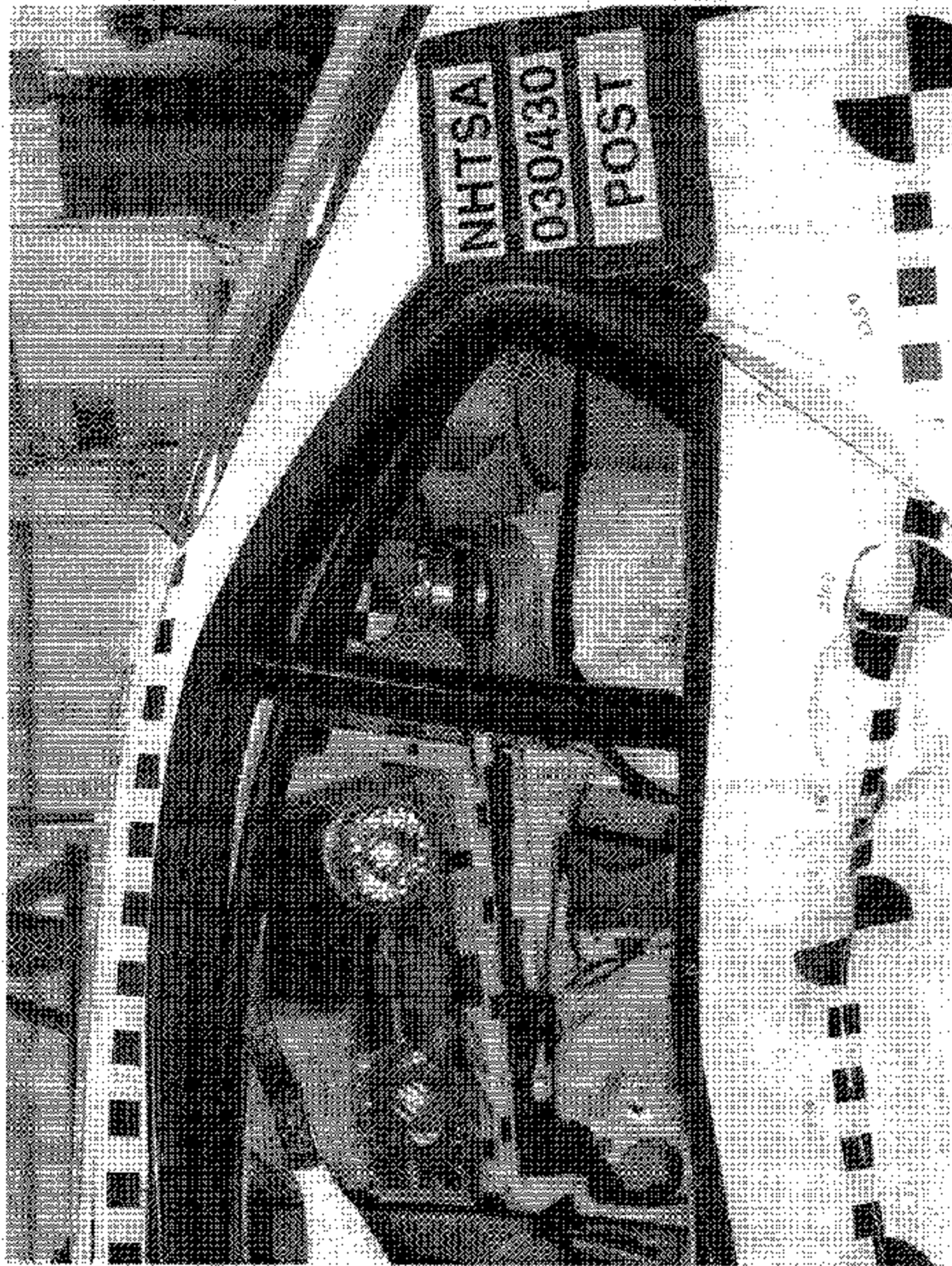


Figure A-26 Post-Test Left View of Rear SID

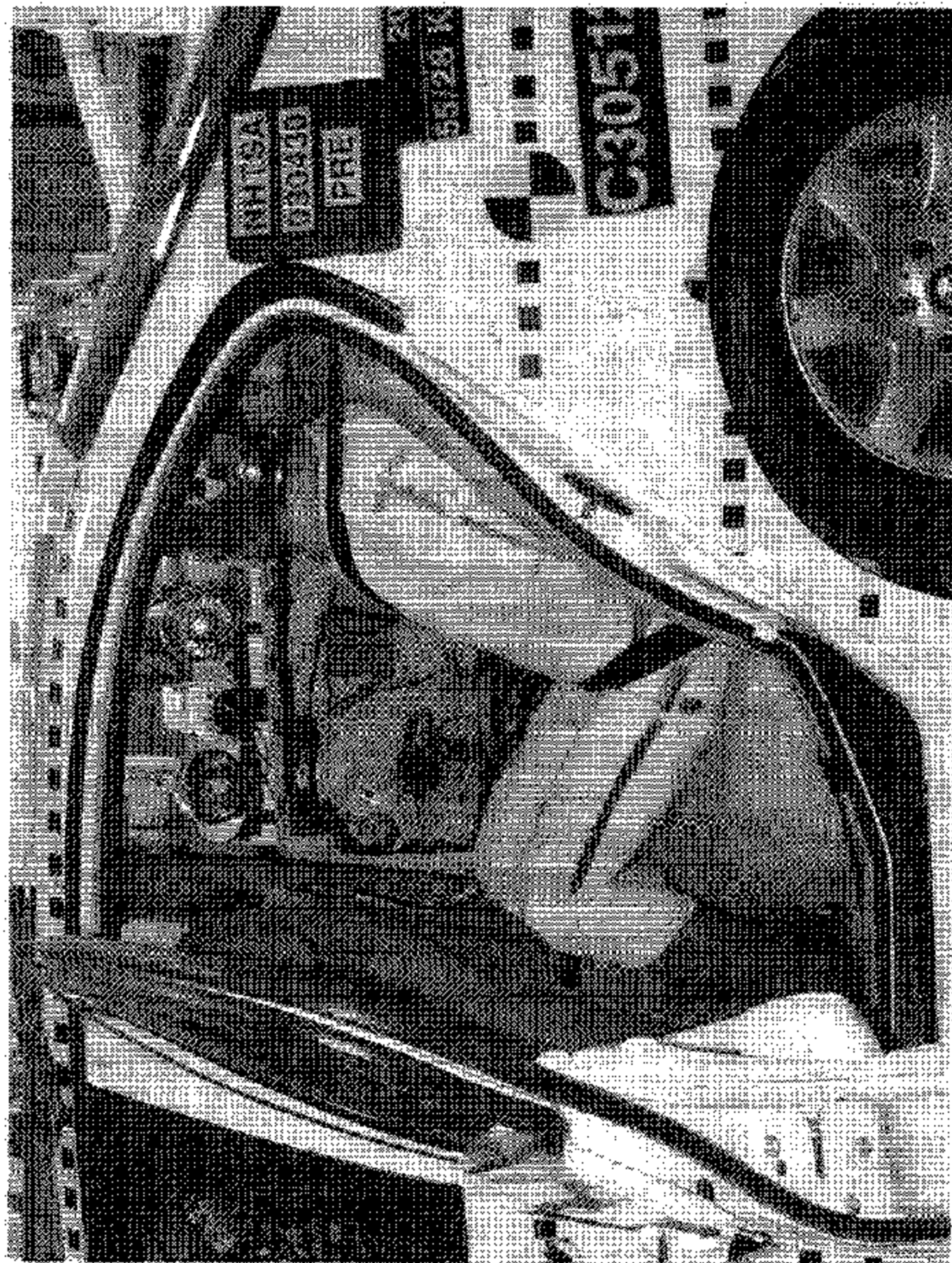


Figure A-27 Pre-Test Left of Rear SID and Belt Position



Figure A-28 Pre-Test Left View of Rear SID and Door Clearance



Figure A-29 Post-Test Left View of Rear SID and Door Clearance



Figure A-30 Pre-Test Interior of Front Door

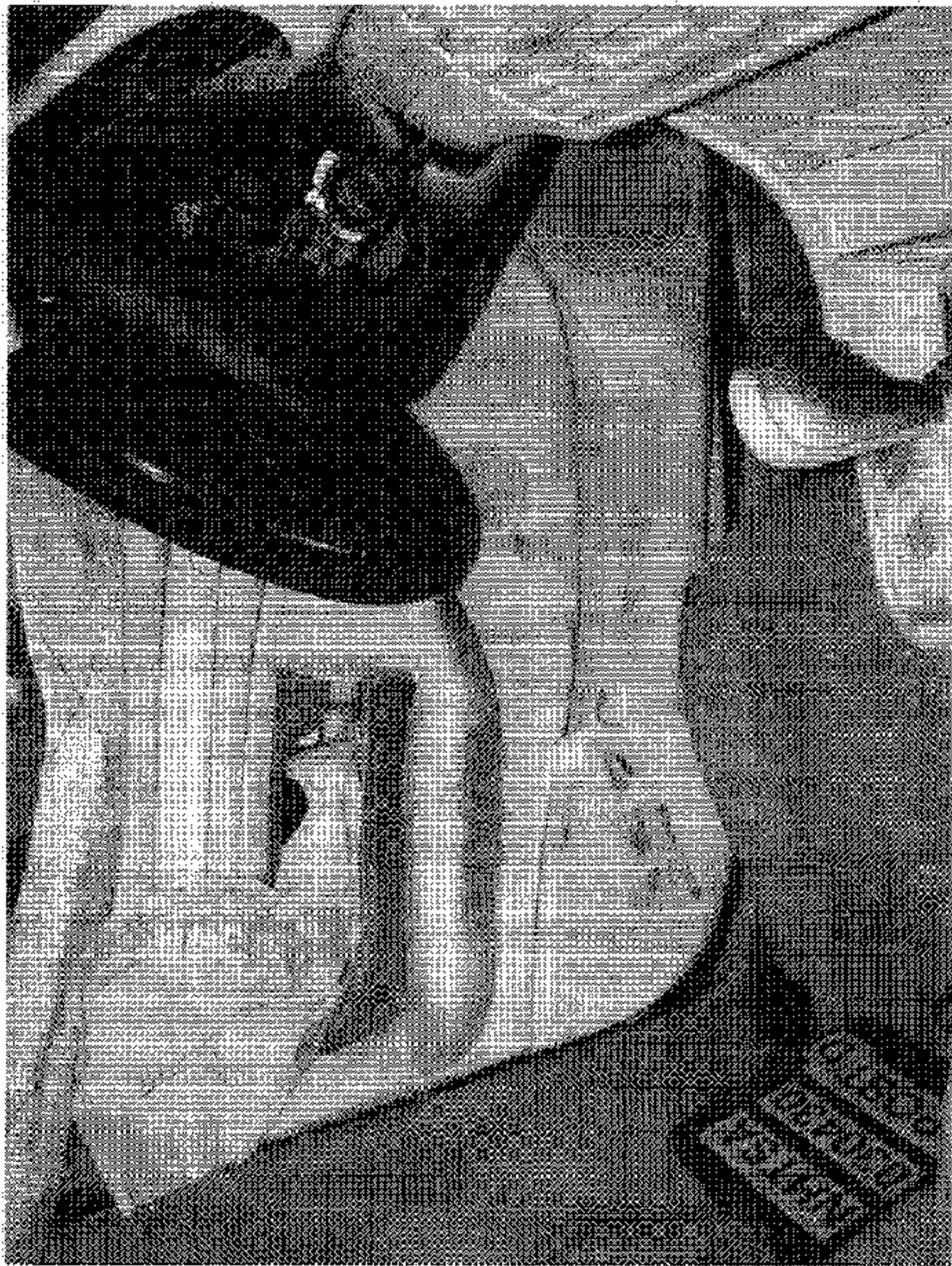


Figure A-31 Post-Test Interior of Front Door Showing SID Impact Locations

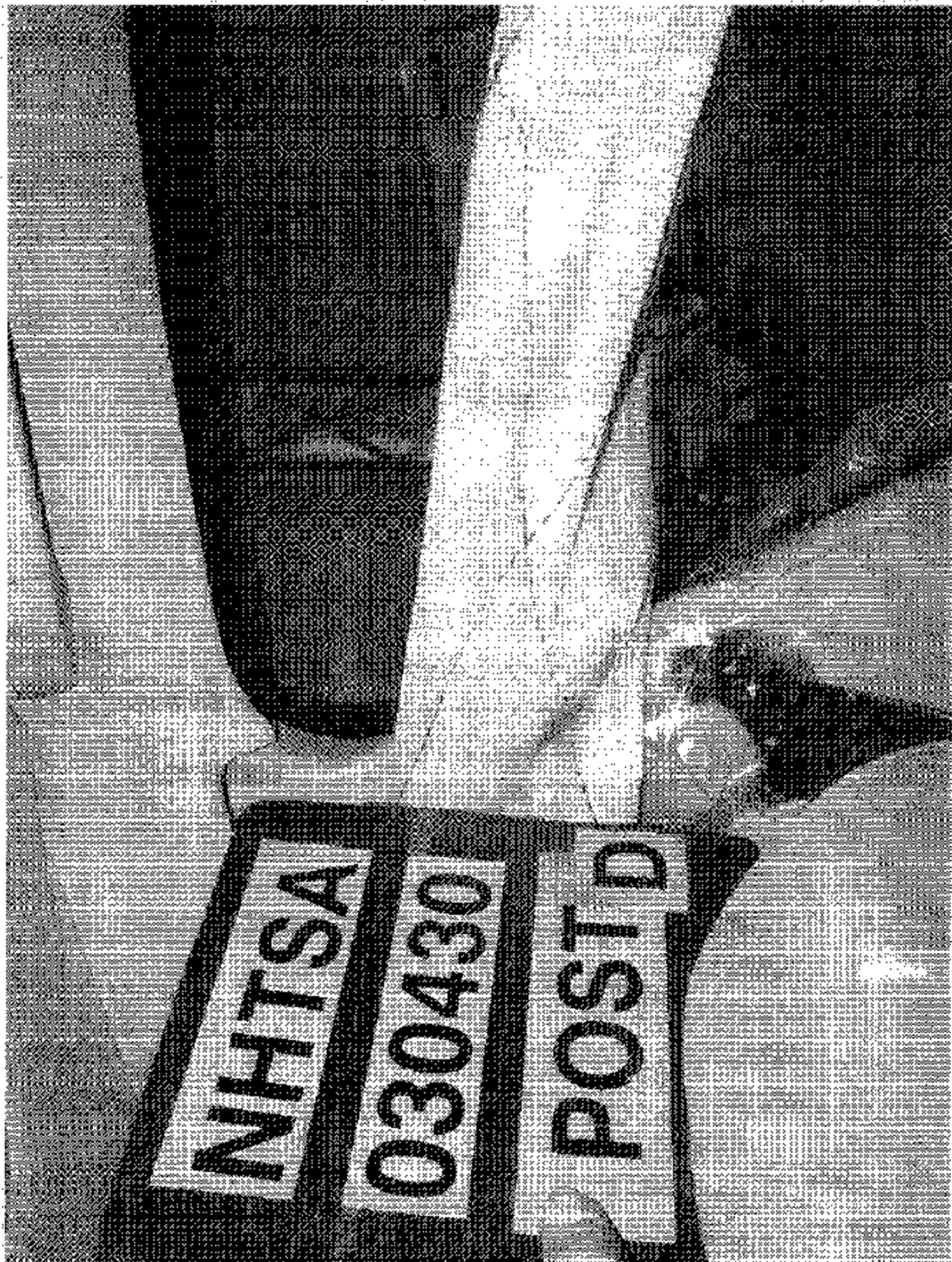


Figure A-32 Post-Test Front SID Contact - View 1



Figure A-33 Post-Test Front SID Contact - View 2



Figure A-34 Post-Test Front SID Contact - View 3

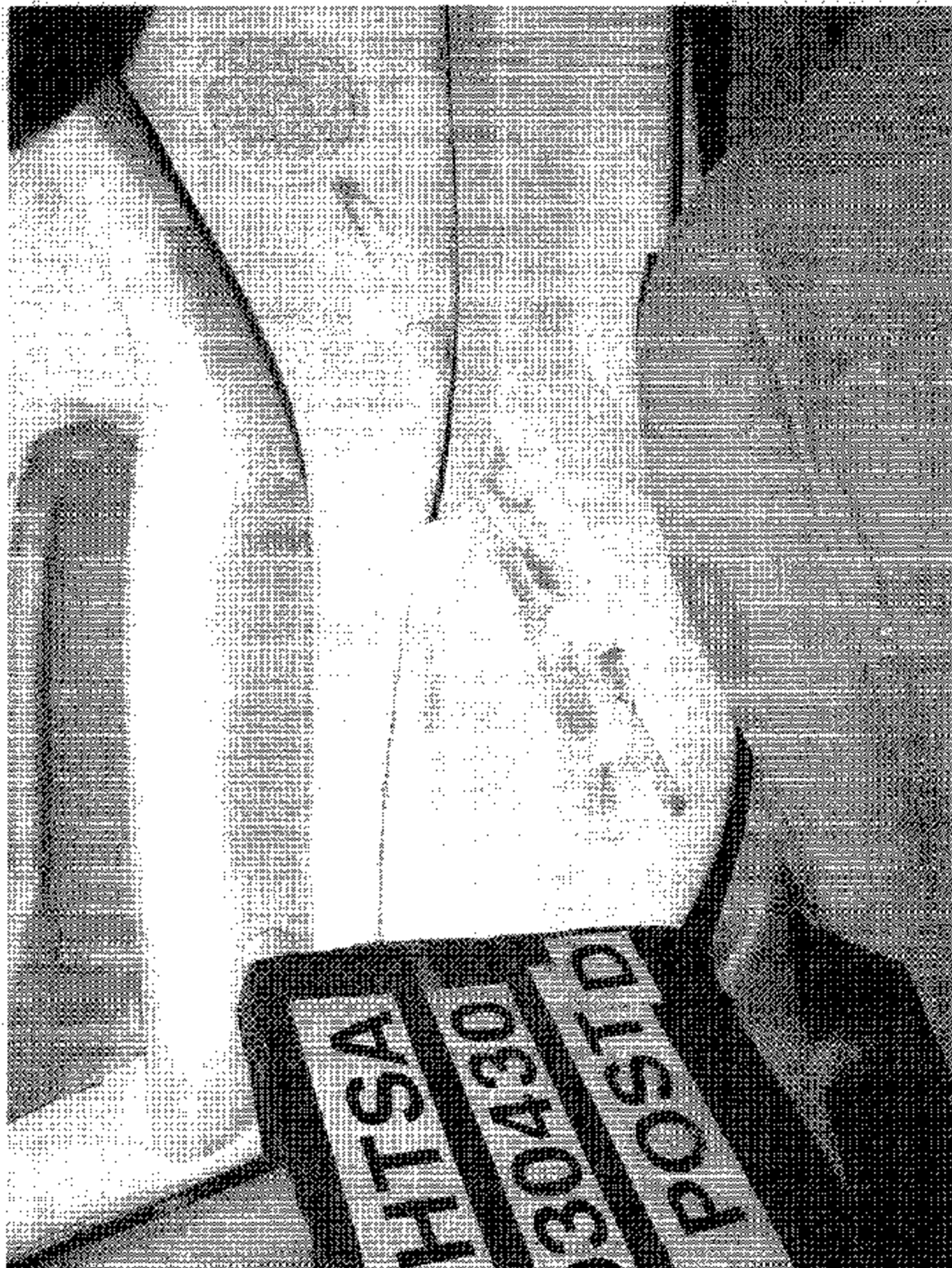


Figure A-35 Post-Test Front SID Contact - View 4

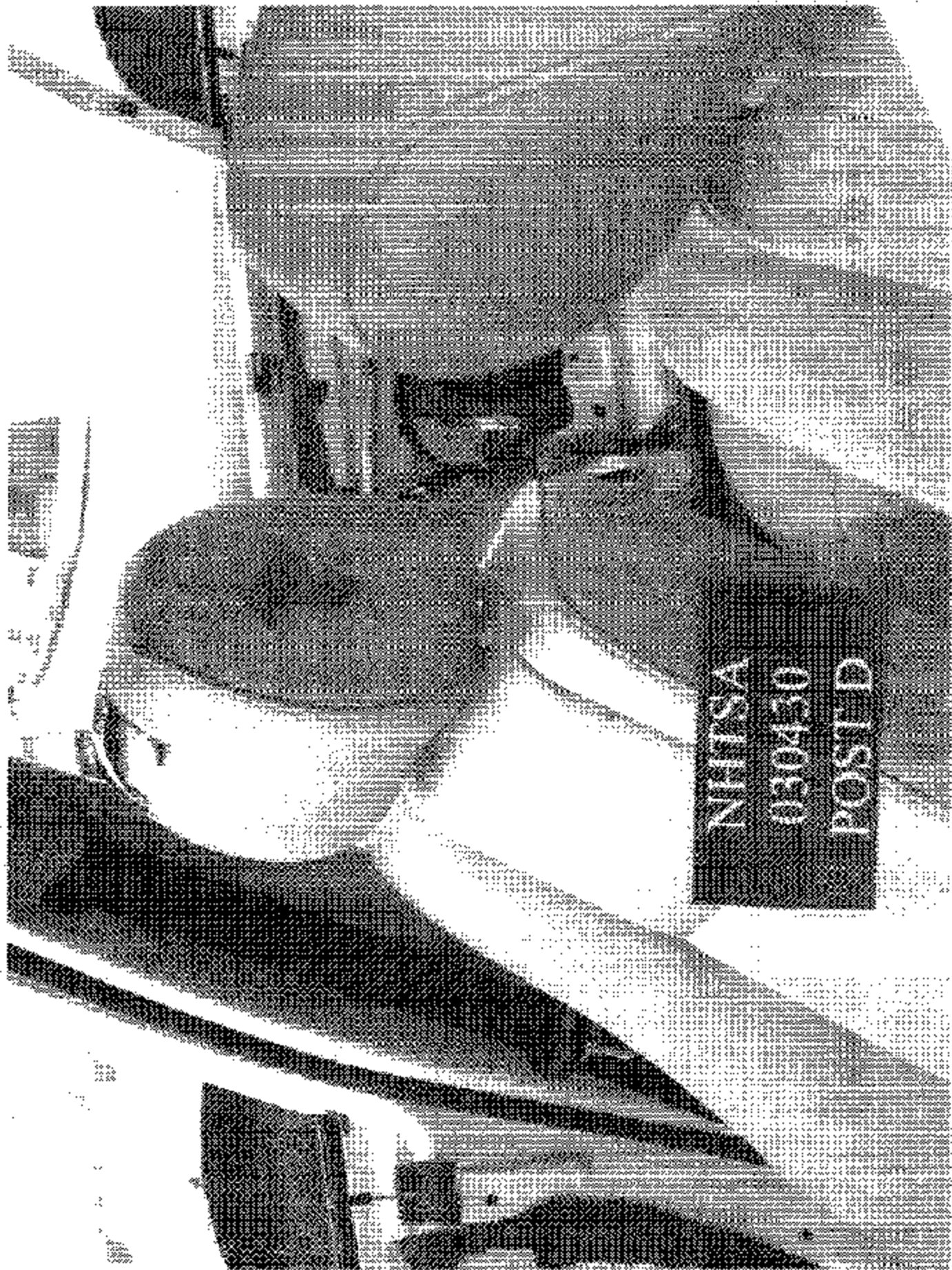


Figure A-36 Post-Test Front SID Contact - View 5



Figure A-37 Pre-Test Interior of Rear Panel

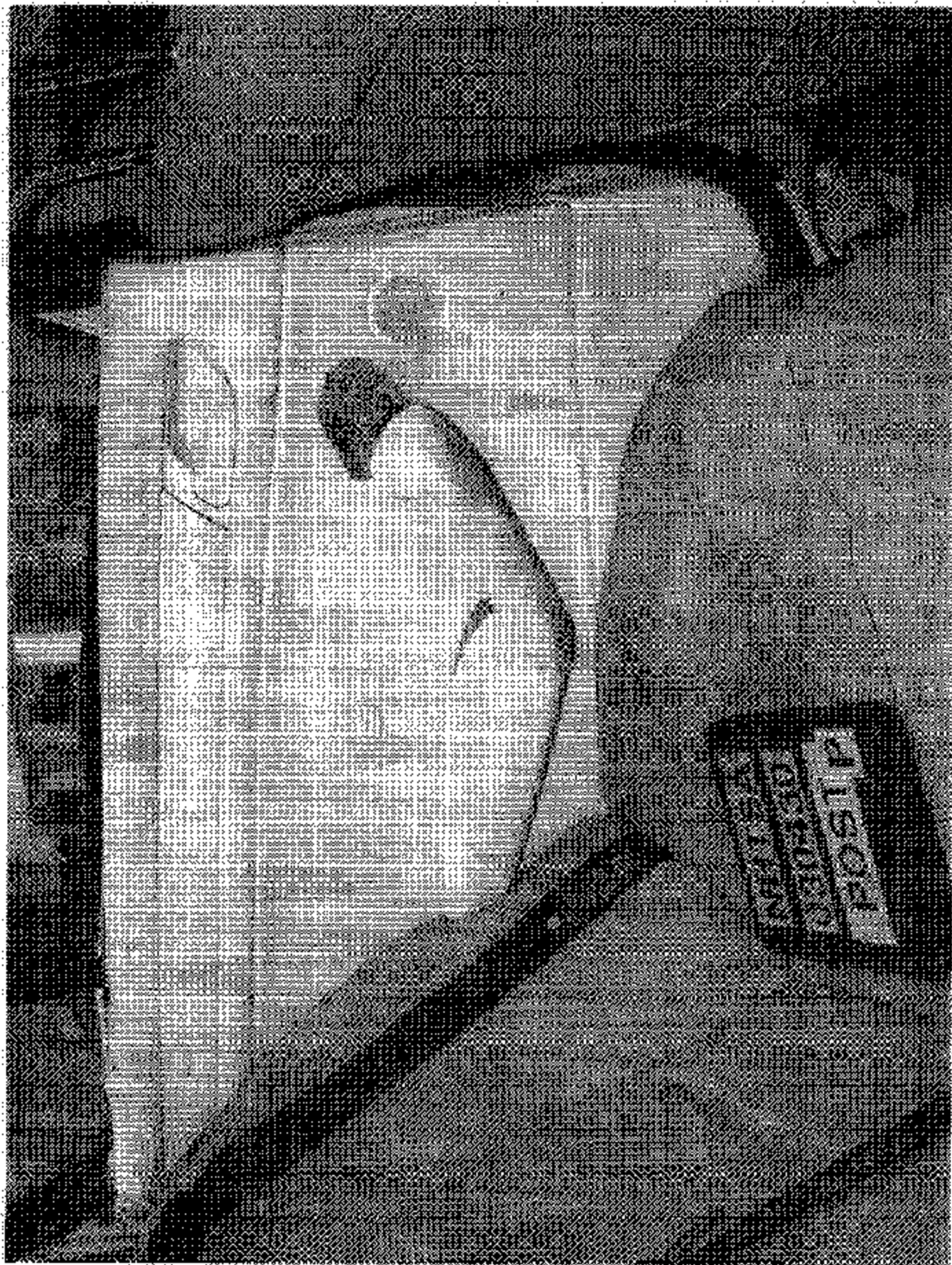


Figure A-38 Post-Test Interior of Rear Panel Showing SID Impact Locations



Figure A-39 Post-Test Rear SID Contact - View 1



Figure A-10 Post-Test Rear SID Contact - View 2



Figure A-41 Post-Test Rear SID Contact - View 3

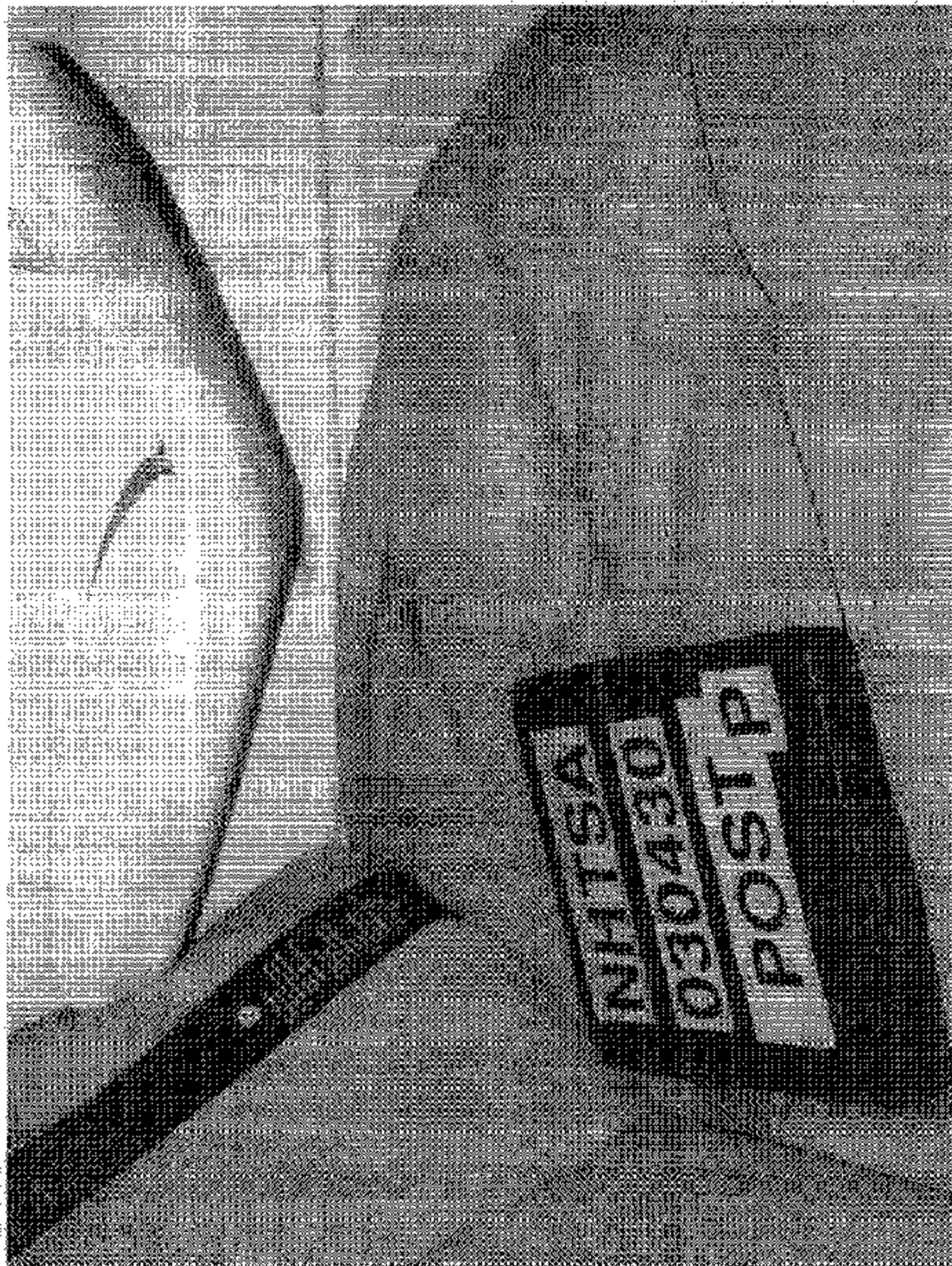


Figure A-42 Post-Test Rear SID Contact - View 4

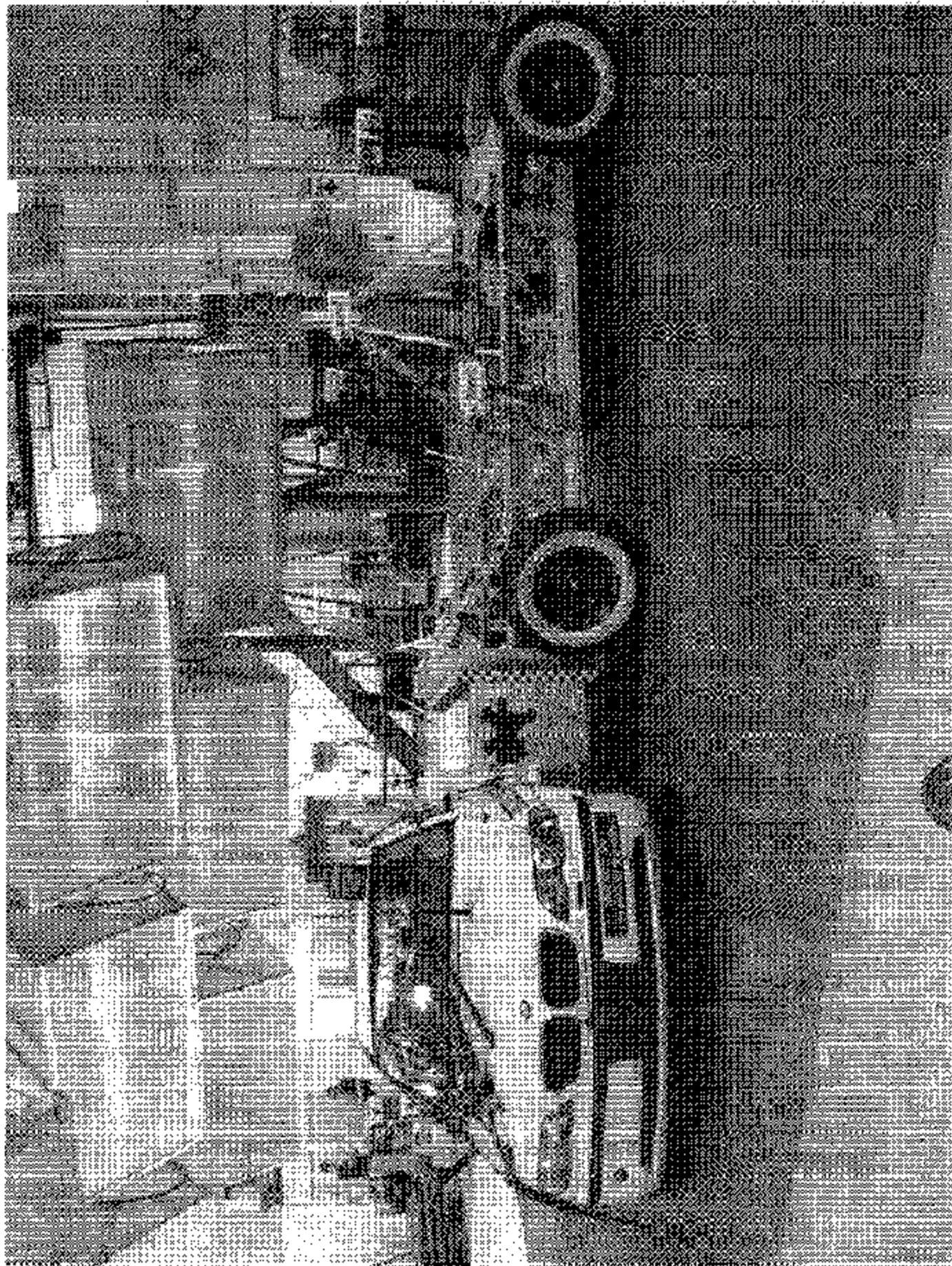


Figure A-43 Pre-Test Left Side View of MDB With Impactor Face in Position

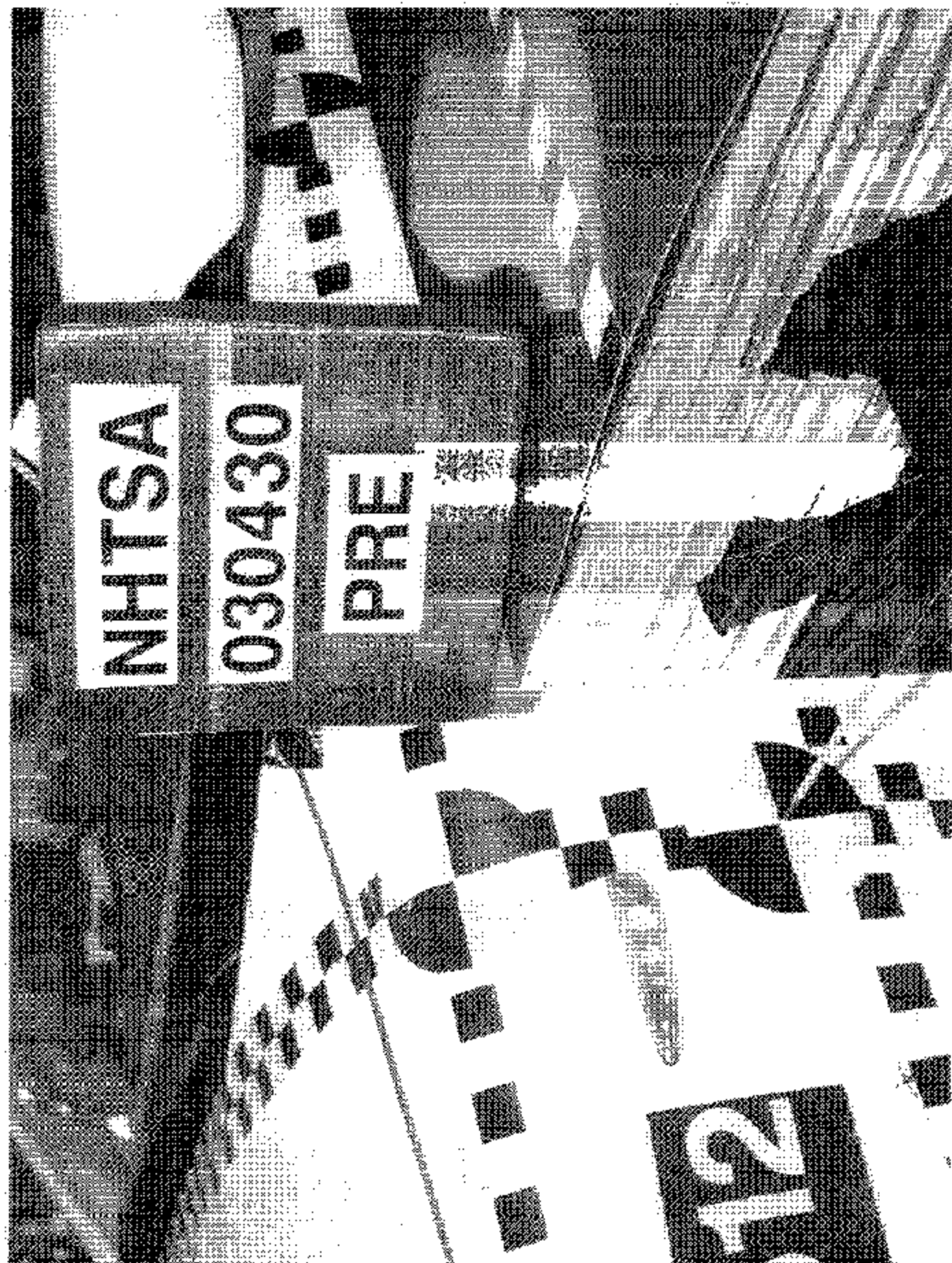


Figure A-44 Pre-Test Primary Impact Point View

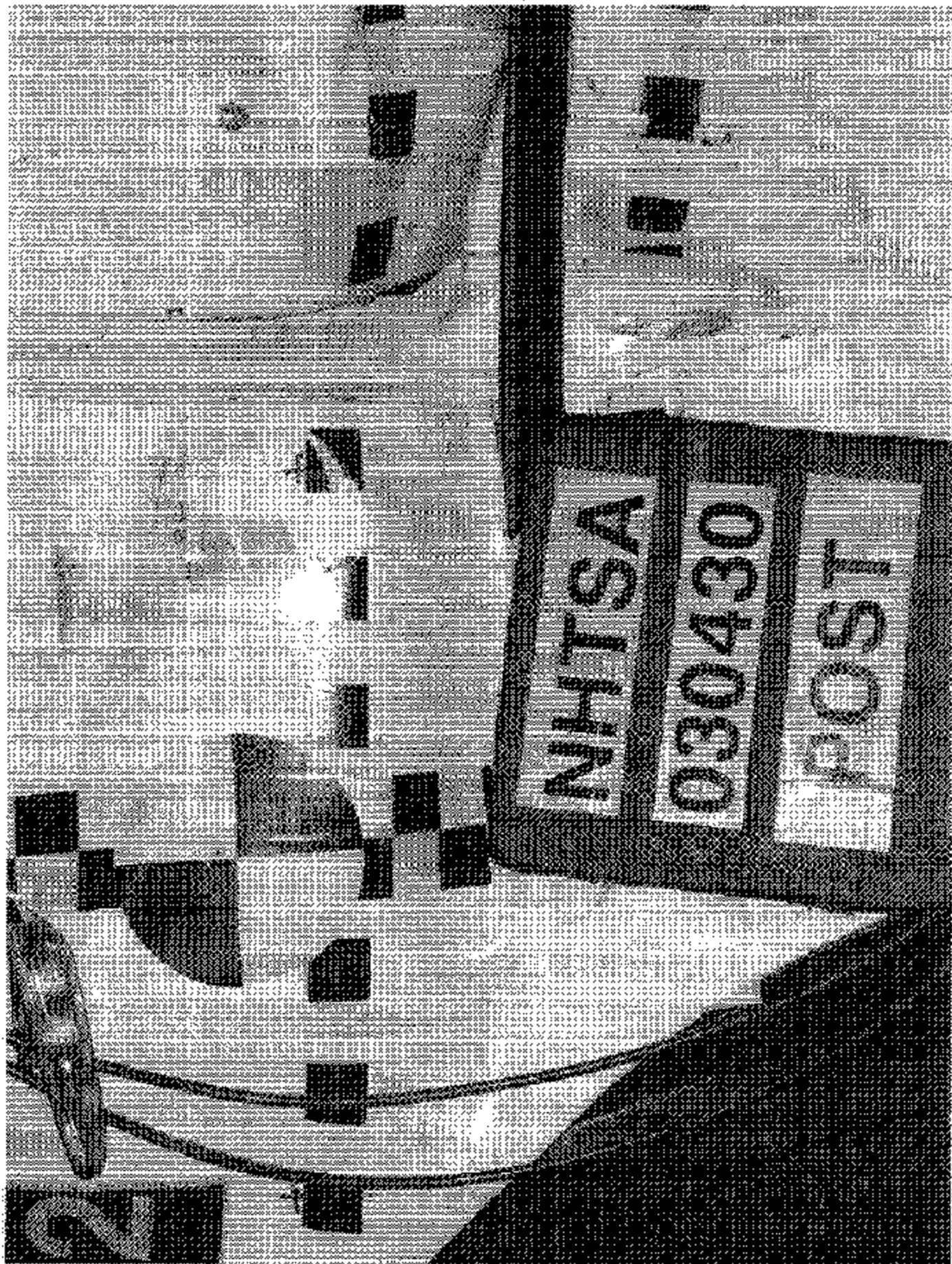


Figure A-45 Post-Test Primary Impact Point View

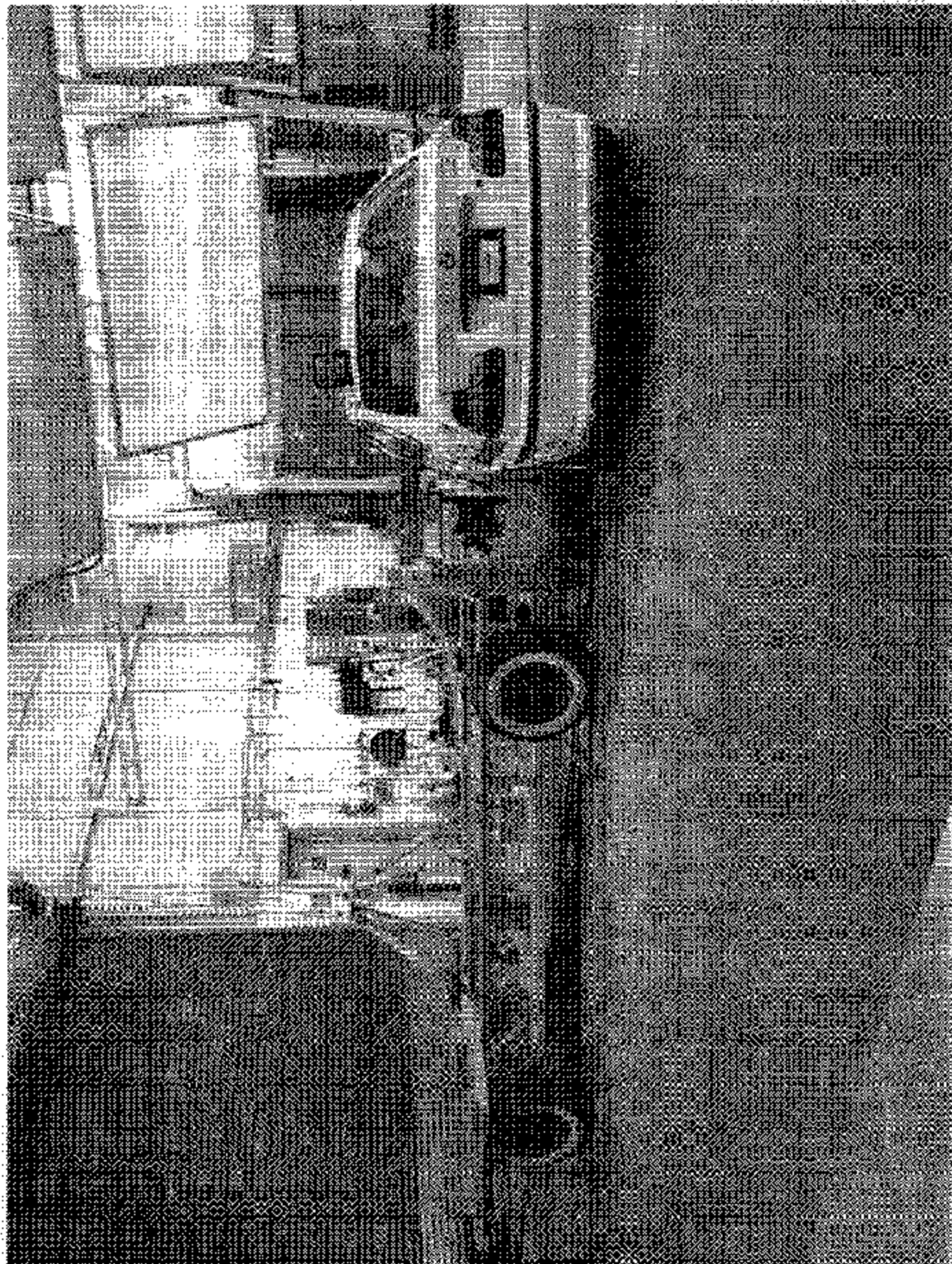


Figure A-46 Pre-Test Right Side View of MDB With Impactor Face in Position



Figure A-47 Pre-Test Secondary Impact Point View



Figure A-48 Post-Test Secondary Impact Point View



3251A 4 VEHICLE TYPE PASSENGER CAR
MFG BY BAYERISCHE MOTORENWERKE AG 11/02

GVWR 4567 lbs 208 kg
GAWT 1984 lbs 900 kg REAR 2425 lbs 1100 kg

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.
FEDERAL MOTOR VEHICLE SAFETY BUMPER AND THEFT
PREVENTION STANDARDS IN EFFECT ON THE DATE OF
MANUFACTURE SHOWN ABOVE

VRBAK137493N126109



C30512

Figure A-49 Pre-Test Vehicle Certification Label View

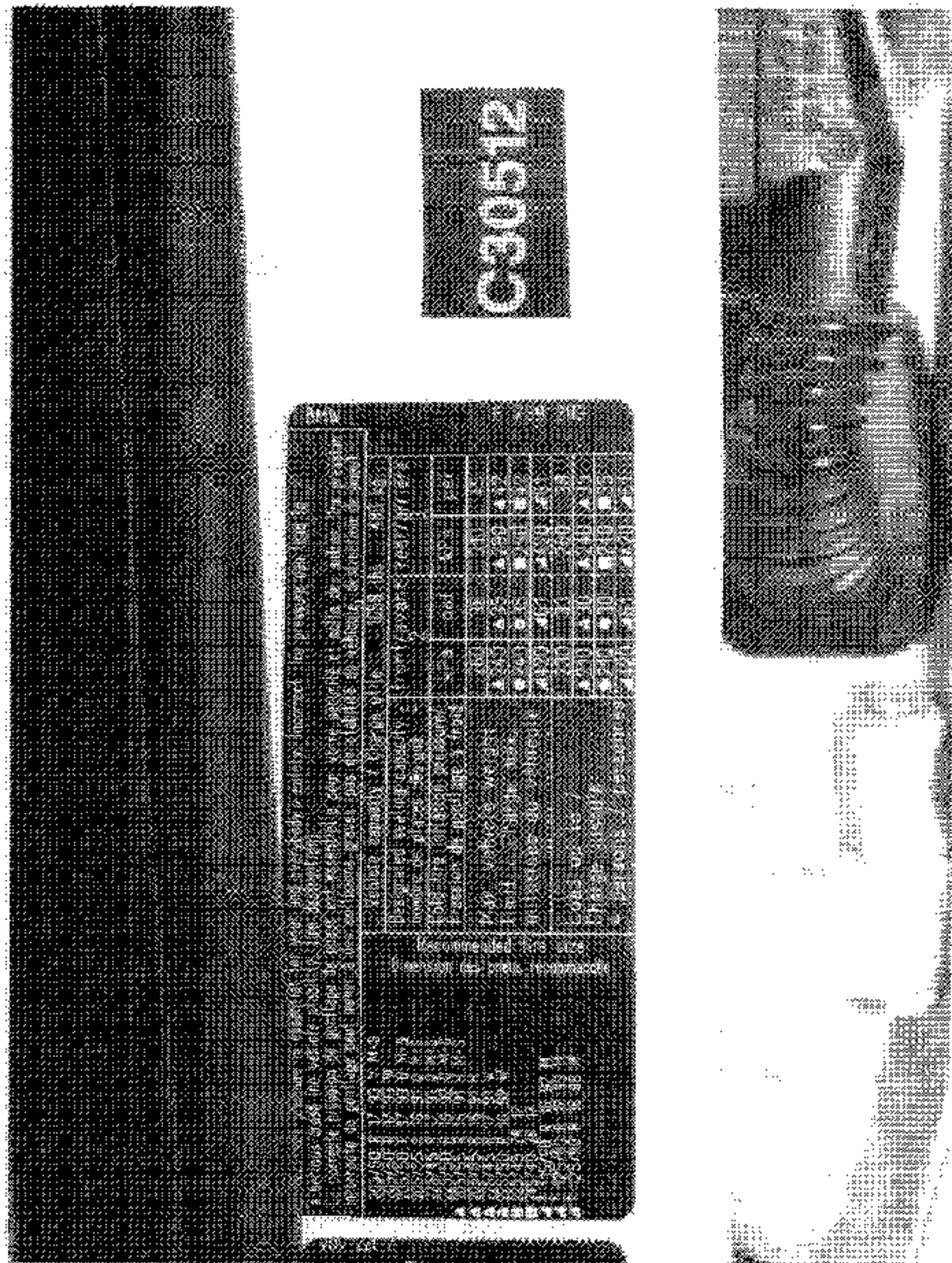


Figure A-50 Pre-Test Vehicle Recommended Tire Pressure Label View

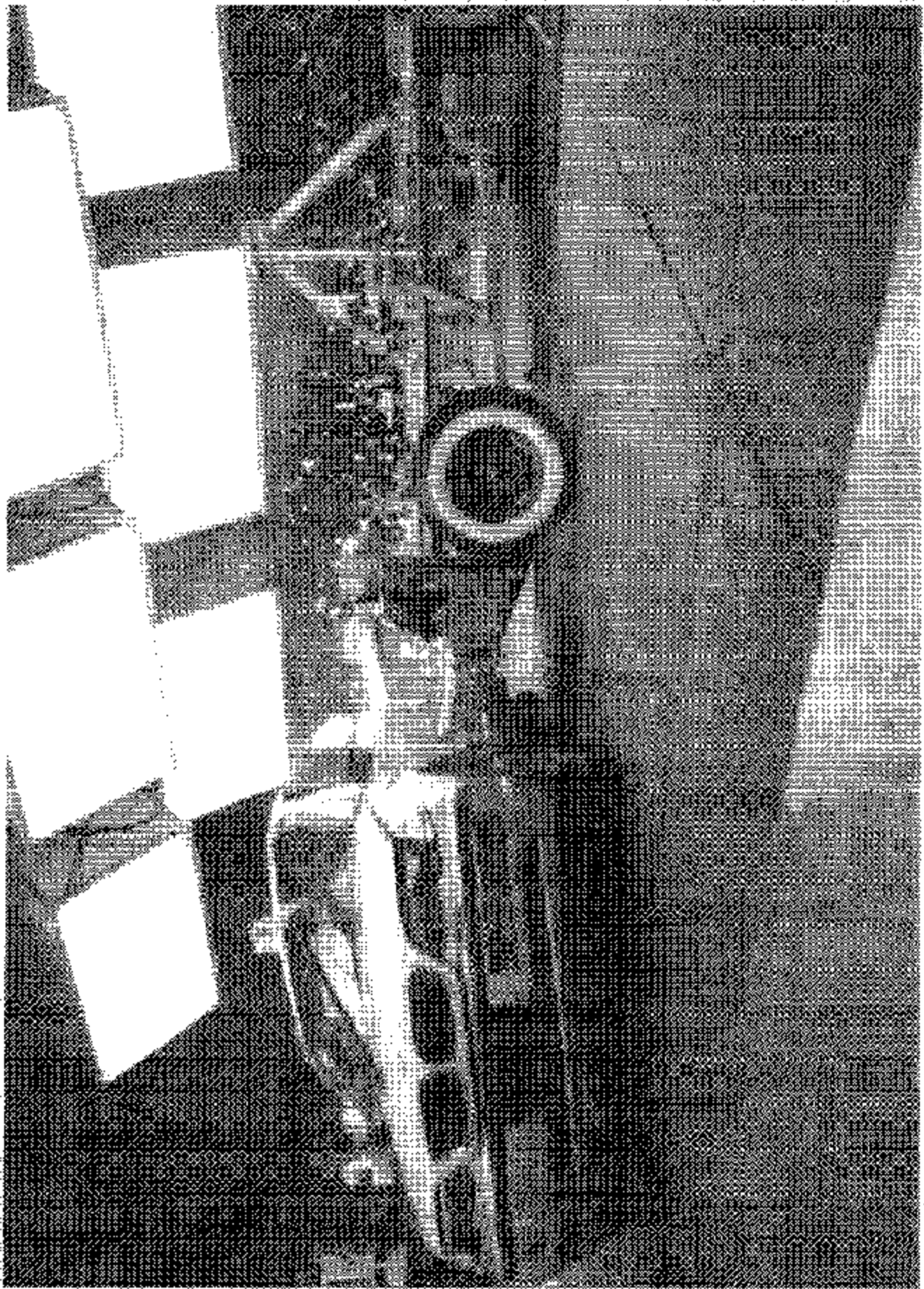


Figure A-51 Impact Event



Figure A-52 Pre-Test Fuel Cap

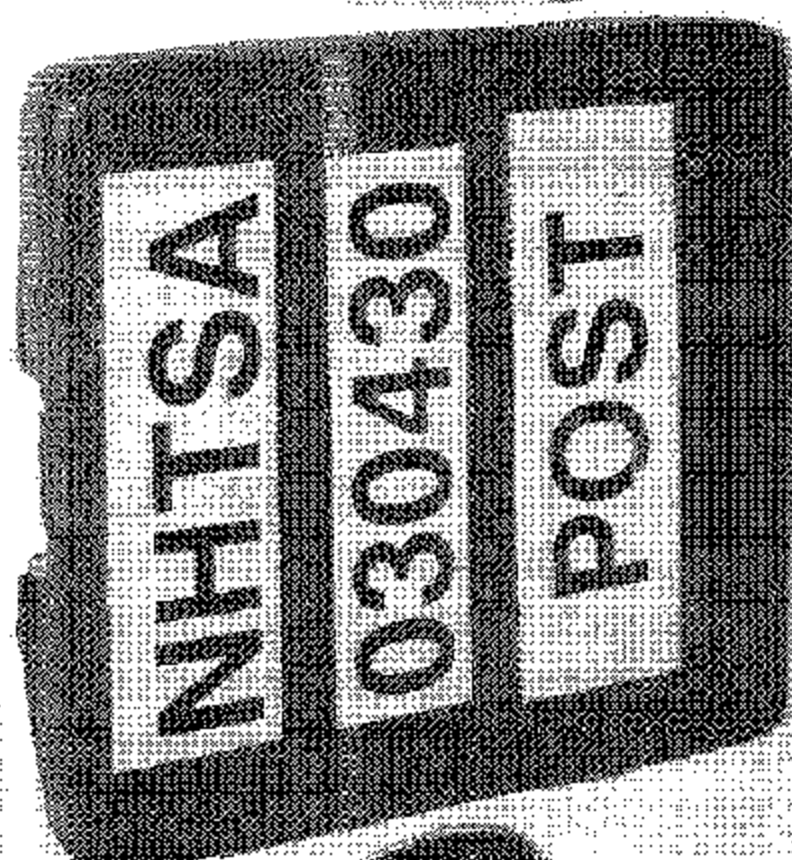


Figure A-53 Post-Test Fuel Cap

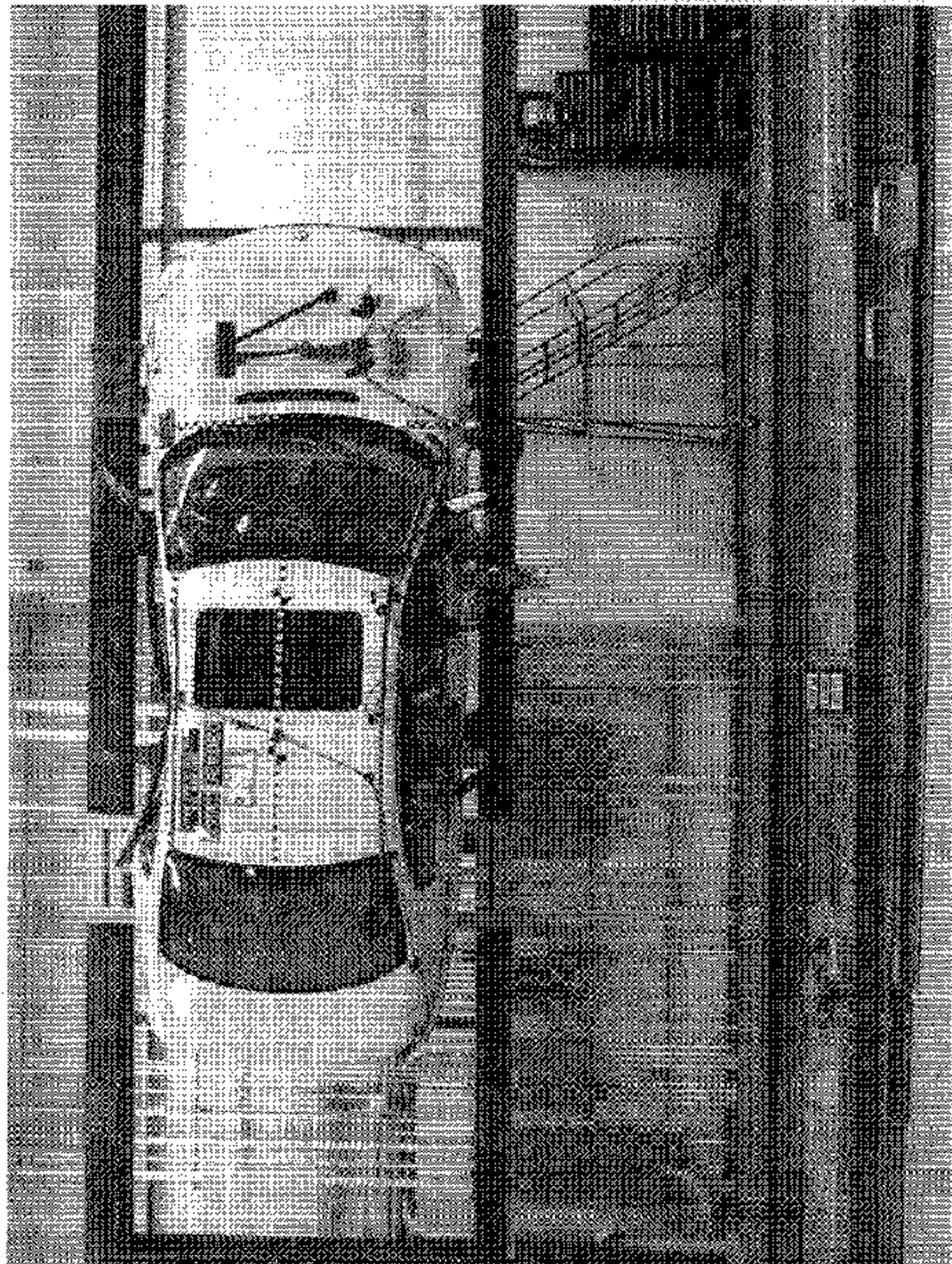


Figure A-54 FMVSS 301 Rollover View at 90°

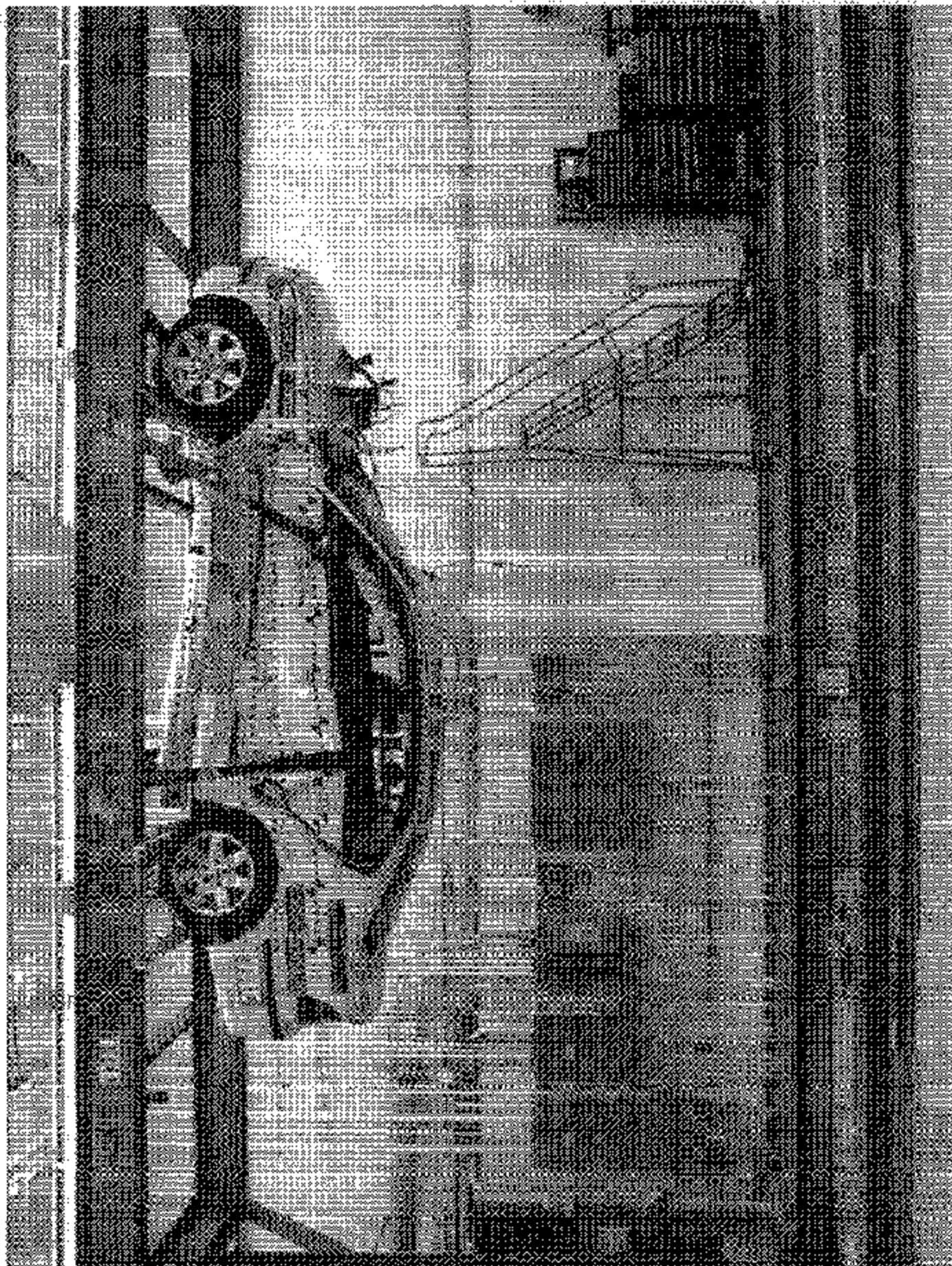


Figure A-55 FMVSS 301 Rollover View at 180°

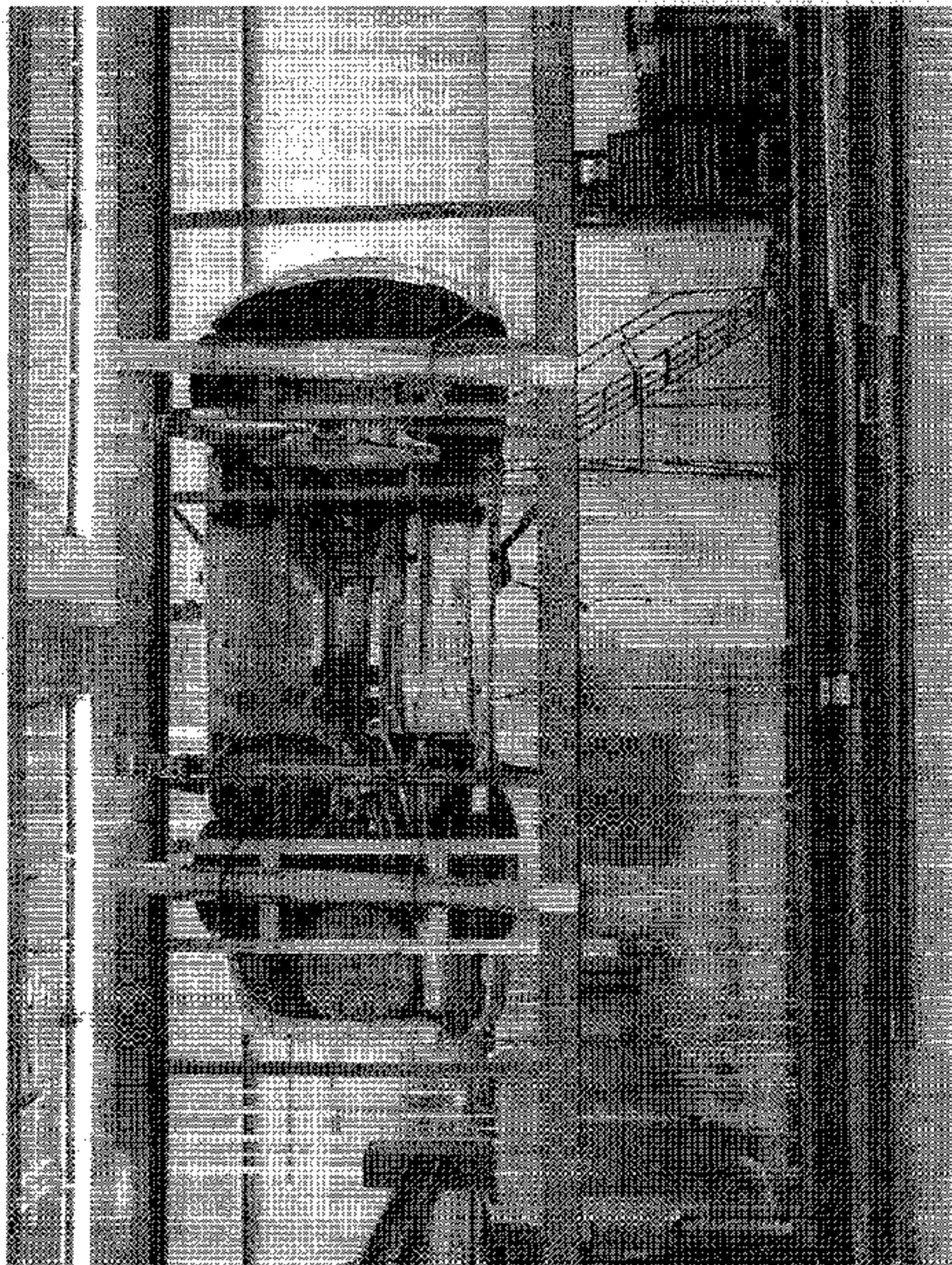


Figure A-56 FMVSS 301 Rollover View at 270°

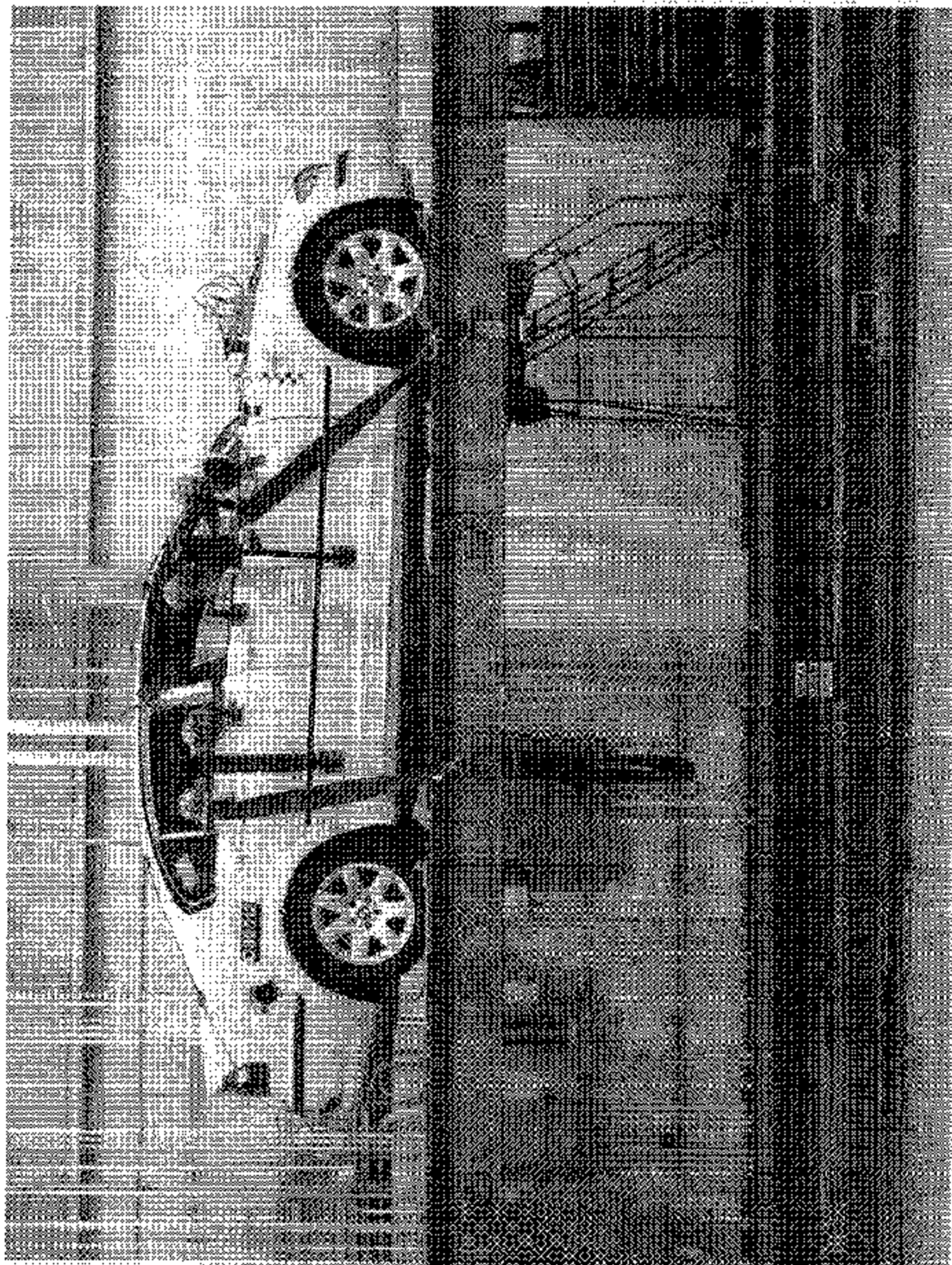


Figure A-57 FMVSS 301 Rollover View at 360°

Appendix B

Data Plots

Table of Data Plots
 Driver and Passenger Dummy Instrumentation Plots
 Acceleration Data - Filter Class 1000
 Integration Data - Filter Class 180
 Force Data - Filter Class 1000
 Moment Data - Filter Class 600

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	Driver Head X-Axis Acceleration	B-10
2	Driver Head X-Axis Velocity	B-11
3	Driver Head Y-Axis Acceleration	B-12
4	Driver Head Y-Axis Velocity	B-13
5	Driver Head Z-Axis Acceleration	B-14
6	Driver Head Z-Axis Velocity	B-15
7	Driver Head Resultant Acceleration	B-16
8	Driver Neck X-Axis Shear Force	B-17
9	Driver Neck Y-Axis Shear Force	B-18
10	Driver Neck Z-Axis Axial Force	B-19
11	Driver Neck Moment about X Axis	B-20
12	Driver Neck Moment about Y Axis	B-21
13	Driver Neck Moment about Z Axis	B-22
14	Driver Neck Occipital Condyle Moment about X Axis	B-23
15	Driver Upper Rib Y-Axis Acceleration	B-24
16	Driver Upper Rib Y-Axis Velocity	B-25
17	Driver Lower Rib Y-Axis Acceleration	B-26
18	Driver Lower Rib Y-Axis Velocity	B-27
19	Driver Lower Spine Y-Axis Acceleration	B-28
20	Driver Lower Spine Y-Axis Velocity	B-29
21	Driver Pelvis Y-Axis Acceleration	B-30
22	Driver Pelvis Y-Axis Velocity	B-31
23	Left Rear Passenger Head X-Axis Acceleration	B-32
24	Left Rear Passenger Head X-Axis Velocity	B-33
25	Left Rear Passenger Head Y-Axis Acceleration	B-34
26	Left Rear Passenger Head Y-Axis Velocity	B-35
27	Left Rear Passenger Head Z-Axis Acceleration	B-36

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Force Data - Filter Class 1000

Moment Data - Filter Class 600

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
28	Left Rear Passenger Head Z-Axis Velocity	B-37
29	Left Rear Passenger Head Resultant Acceleration	B-38
30	Left Rear Passenger Neck X-Axis Shear Force	B-39
31	Left Rear Passenger Neck Y-Axis Shear Force	B-40
32	Left Rear Passenger Neck Z-Axis Axial Force	B-41
33	Left Rear Passenger Neck Moment about X Axis	B-42
34	Left Rear Passenger Neck Moment about Y Axis	B-43
35	Left Rear Passenger Neck Moment about Z Axis	B-44
36	Left Rear Passenger Neck Occipital Condyle Moment about X Axis	B-45
37	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-46
38	Left Rear Passenger Upper Rib Y-Axis Velocity	B-47
39	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-48
40	Left Rear Passenger Lower Rib Y-Axis Velocity	B-49
41	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-50
42	Left Rear Passenger Lower Spine Y-Axis Velocity	B-51
43	Left Rear Passenger Pelvis Y-Axis Acceleration	B-52
44	Left Rear Passenger Pelvis Y-Axis Velocity	B-53

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
45	Driver Head X-Axis Redundant Acceleration	B-55
46	Driver Head X-Axis Redundant Velocity	B-56
47	Driver Head Y-Axis Redundant Acceleration	B-57
48	Driver Head Y-Axis Redundant Velocity	B-58

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
49	Driver Head Z-Axis Redundant Acceleration	B-59
50	Driver Head Z-Axis Redundant Velocity	B-60
51	Driver Head Resultant Redundant Acceleration	B-61
52	Driver Upper Rib Y-Axis Redundant Acceleration	B-62
53	Driver Upper Rib Y-Axis Redundant Velocity	B-63
54	Driver Lower Rib Y-Axis Redundant Acceleration	B-64
55	Driver Lower Rib Y-Axis Redundant Velocity	B-65
56	Driver Lower Spine Y-Axis Redundant Acceleration	B-66
57	Driver Lower Spine Y-Axis Redundant Velocity	B-67
58	Driver Pelvis Y-Axis Redundant Acceleration	B-68
59	Driver Pelvis Y-Axis Redundant Velocity	B-69
60	Left Rear Passenger Head X-Axis Redundant Acceleration	B-70
61	Left Rear Passenger Head X-Axis Redundant Velocity	B-71
62	Left Rear Passenger Head Y-Axis Redundant Acceleration	B-72
63	Left Rear Passenger Head Y-Axis Redundant Velocity	B-73
64	Left Rear Passenger Head Z-Axis Redundant Acceleration	B-74
65	Left Rear Passenger Head Z-Axis Redundant Velocity	B-75
66	Left Rear Passenger Head Resultant Redundant Acceleration	B-76
67	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-77
68	Left Rear Passenger Upper Rib Y-Axis Redundant Velocity	B-78
69	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-79
70	Left Rear Passenger Lower Rib Y-Axis Redundant Velocity	B-80
71	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-81
72	Left Rear Passenger Lower Spine Y-Axis Redundant Velocity	B-82
73	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-83
74	Left Rear Passenger Pelvis Y-Axis Redundant Velocity	B-84

Table of Data Plots (Continued)
Test Vehicle Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
75	Right Side Sill at Front Seat X-Axis Acceleration	B-86
76	Right Side Sill at Front Seat X-Axis Velocity	B-87
77	Right Side Sill at Front Seat Y-Axis Acceleration	B-88
78	Right Side Sill at Front Seat Y-Axis Velocity	B-89
79	Right Side Sill at Front Seat Z-Axis Acceleration	B-90
80	Right Side Sill at Front Seat Z-Axis Velocity	B-91
81	Right Side Sill at Front Seat Resultant Acceleration	B-92
82	Right Side Sill at Rear Seat X-Axis Acceleration	B-93
83	Right Side Sill at Rear Seat X-Axis Velocity	B-94
84	Right Side Sill at Rear Seat Y-Axis Acceleration	B-95
85	Right Side Sill at Rear Seat Y-Axis Velocity	B-96
86	Right Side Sill at Rear Seat Z-Axis Acceleration	B-97
87	Right Side Sill at Rear Seat Z-Axis Velocity	B-98
88	Right Side Sill at Rear Seat Resultant Acceleration	B-99
89	Rear Floorpan Above Axle X-Axis Acceleration	B-100
90	Rear Floorpan Above Axle X-Axis Velocity	B-101
91	Rear Floorpan Above Axle Y-Axis Acceleration	B-102
92	Rear Floorpan Above Axle Y-Axis Velocity	B-103
93	Rear Floorpan Above Axle Z-Axis Acceleration	B-104
94	Rear Floorpan Above Axle Z-Axis Velocity	B-105
95	Rear Floorpan Above Axle Resultant Acceleration	B-106
96	Left Side Sill at Front Seat Y-Axis Acceleration	B-107
97	Left Side Sill at Front Seat Y-Axis Velocity	B-108
98	Left Side Sill at Front Seat Y-Axis Displacement	B-109
99	Left Side Sill at Rear Seat Y-Axis Acceleration	B-110
100	Left Side Sill at Rear Seat Y-Axis Velocity	B-111
101	Left Side Sill at Rear Seat Y-Axis Displacement	B-112
102	Right Rear Occupant Compartment Y-Axis Acceleration	B-113
103	Right Rear Occupant Compartment Y-Axis Velocity	B-114

Table of Data Plots (Continued)
Test Vehicle Instrumentation Plots (Continued)
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
104	Right Rear Occupant Compartment Y-Axis Displacement	B-115
105	Left Lower A-Post Y-Axis Acceleration	B-116
106	Left Lower A-Post Y-Axis Velocity	B-117
107	Left Middle A-Post Y-Axis Acceleration	B-118
108	Left Middle A-Post Y-Axis Velocity	B-119
109	Left Lower B-Post Y-Axis Acceleration	B-120
110	Left Lower B-Post Y-Axis Velocity	B-121
111	Left Middle B-Post Y-Axis Acceleration	B-122
112	Left Middle B-Post Y-Axis Velocity	B-123
113	Left Front Seat Track Y-Axis Acceleration	B-124
114	Left Front Seat Track Y-Axis Velocity	B-125
115	Left Rear Seat Track Y-Axis Acceleration	B-126
116	Left Rear Seat Track Y-Axis Velocity	B-127
117	Vehicle Center of Gravity X-Axis Acceleration	B-128
118	Vehicle Center of Gravity X-Axis Velocity	B-129
119	Vehicle Center of Gravity Y-Axis Acceleration	B-130
120	Vehicle Center of Gravity Y-Axis Velocity	B-131
121	Vehicle Center of Gravity Z-Axis Acceleration	B-132
122	Vehicle Center of Gravity Z-Axis Velocity	B-133
123	Vehicle Center of Gravity Resultant Acceleration	B-134

MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
124	MDB Center of Gravity X-Axis Acceleration	B-136
125	MDB Center of Gravity X-Axis Velocity	B-137
126	MDB Center of Gravity Y-Axis Acceleration	B-138

Table of Data Plots (Continued)
 MDB Instrumentation Plots (Continued)
 Acceleration Data - Filter Class 60
 Integration Data - Filter Class 180
 Contact Data - Filter Class 1000

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
127	MDB Center of Gravity Y-Axis Velocity	B-139
128	MDB Center of Gravity Z-Axis Acceleration	B-140
129	MDB Center of Gravity Z-Axis Velocity	B-141
130	MDB Center of Gravity Resultant Acceleration	B-142
131	MDB Left Rear X-Axis Acceleration	B-143
132	MDB Left Rear X-Axis Velocity	B-144
133	MDB Left Rear Y-Axis Acceleration	B-145
134	MDB Left Rear Y-Axis Velocity	B-146
135	MDB Right Side Contact Switch	B-147
136	MDB Left Side Contact Switch	B-148

Driver and Passenger Dummy Instrumentation Plots
 Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
137	Driver Upper Rib Y-Axis Acceleration	B-150
138	Driver Lower Rib Y-Axis Acceleration	B-151
139	Driver Lower Spine Y-Axis Acceleration	B-152
140	Driver Pelvis Y-Axis Acceleration	B-153
141	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-154
142	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-155
143	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-156
144	Left Rear Passenger Pelvis Y-Axis Acceleration	B-157

Table of Data Plots (Continued)
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
145	Driver Upper Rib Y-Axis Redundant Acceleration	B-159
146	Driver Lower Rib Y-Axis Redundant Acceleration	B-160
147	Driver Lower Spine Y-Axis Redundant Acceleration	B-161
148	Driver Pelvis Y-Axis Redundant Acceleration	B-162
149	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-163
150	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-164
151	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-165
152	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-166

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

Force Data - Filter Class 1000

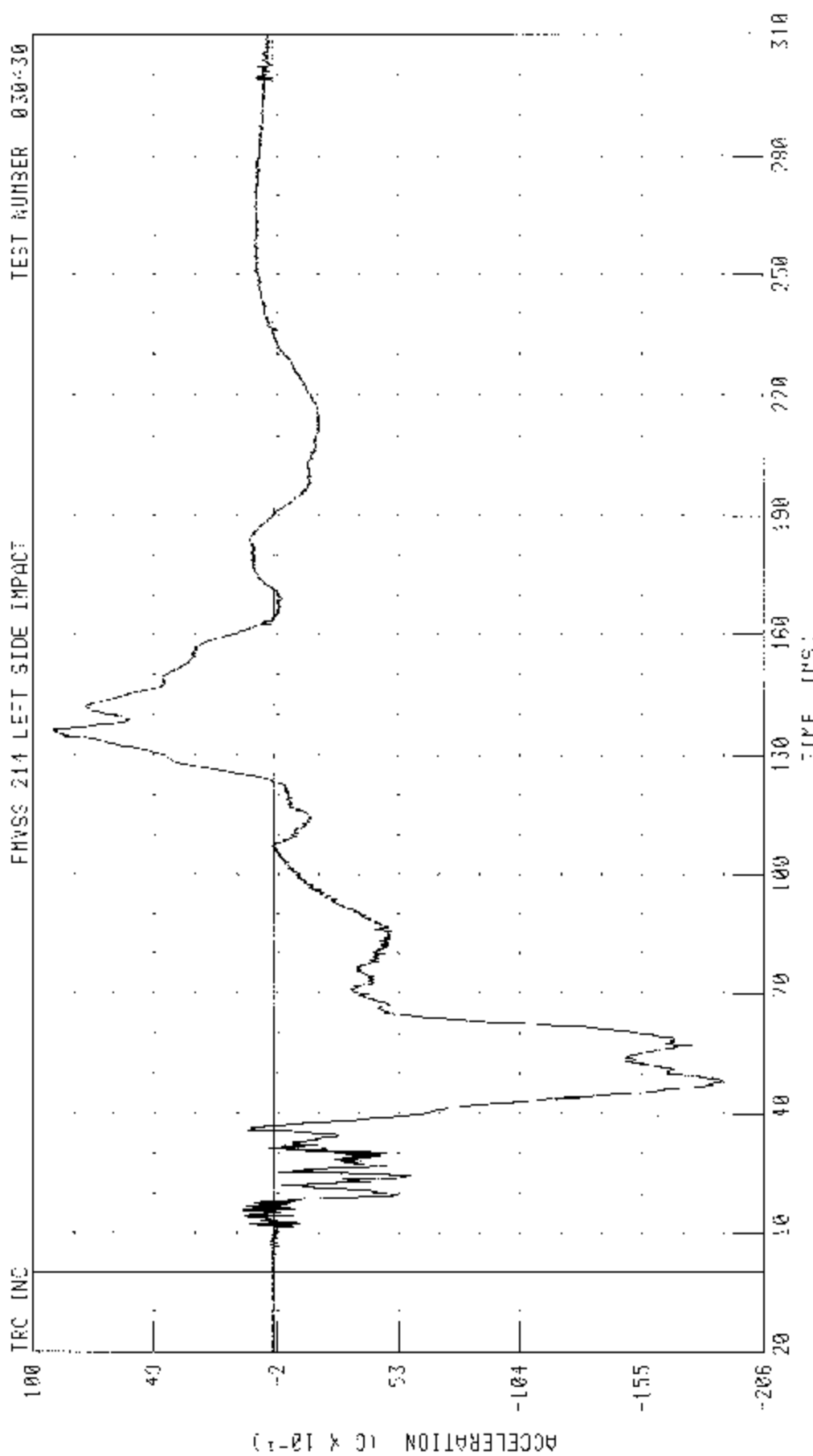
Moment Data - Filter Class 600

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD X-AXIS ACCELERATION

FHVS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



CHANNEL: HEDXG1 FILTER: CII CLASS 1000

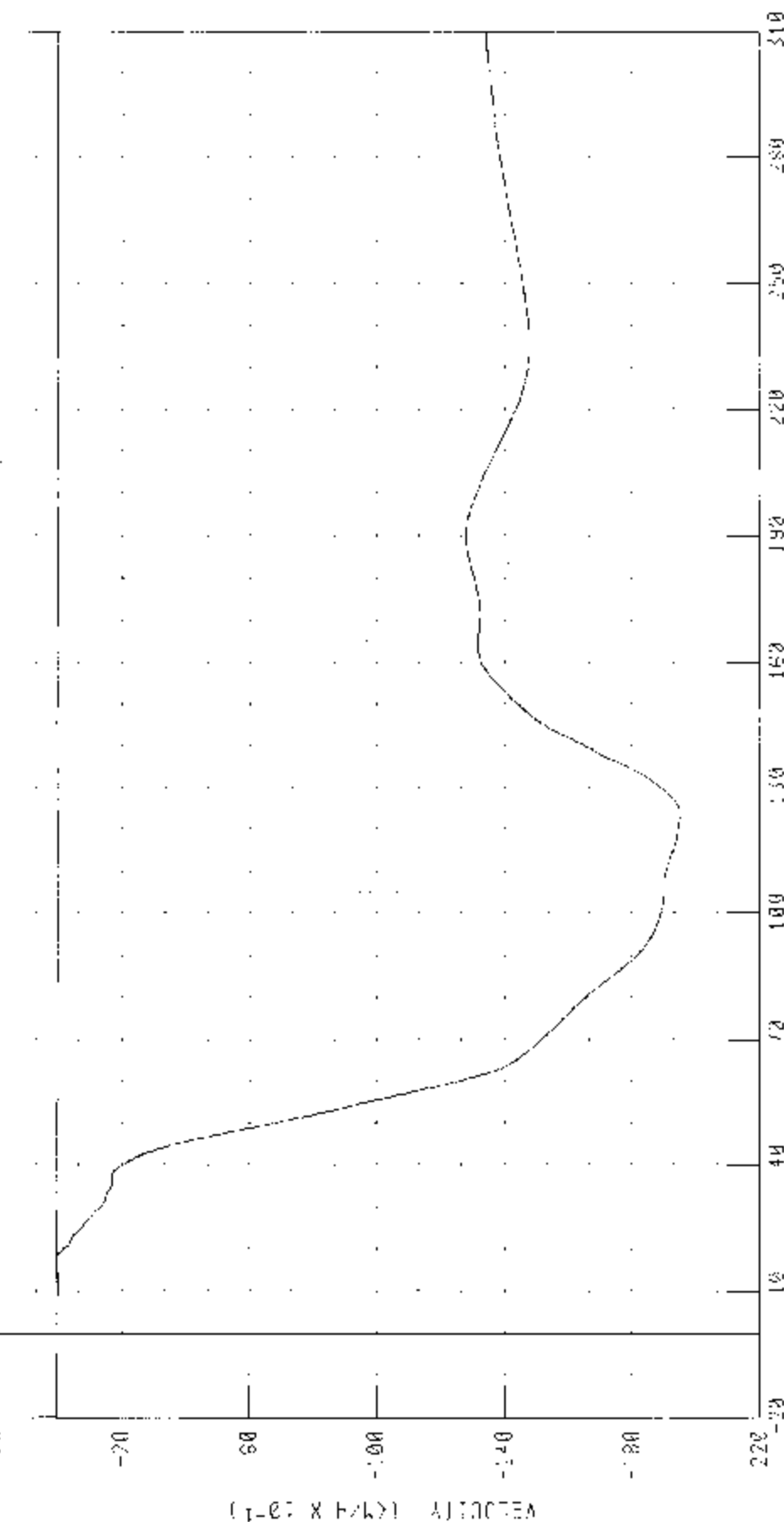
PEAK DATA: 3 15 0 9 136.52 MS. 10 32 0 9 48.16 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2005 BMW 325i

DRIVER HEAD X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030430

180 INCH



TIME (ms)

CHANNEL PEDXV1 FILTER OF LOSS 180

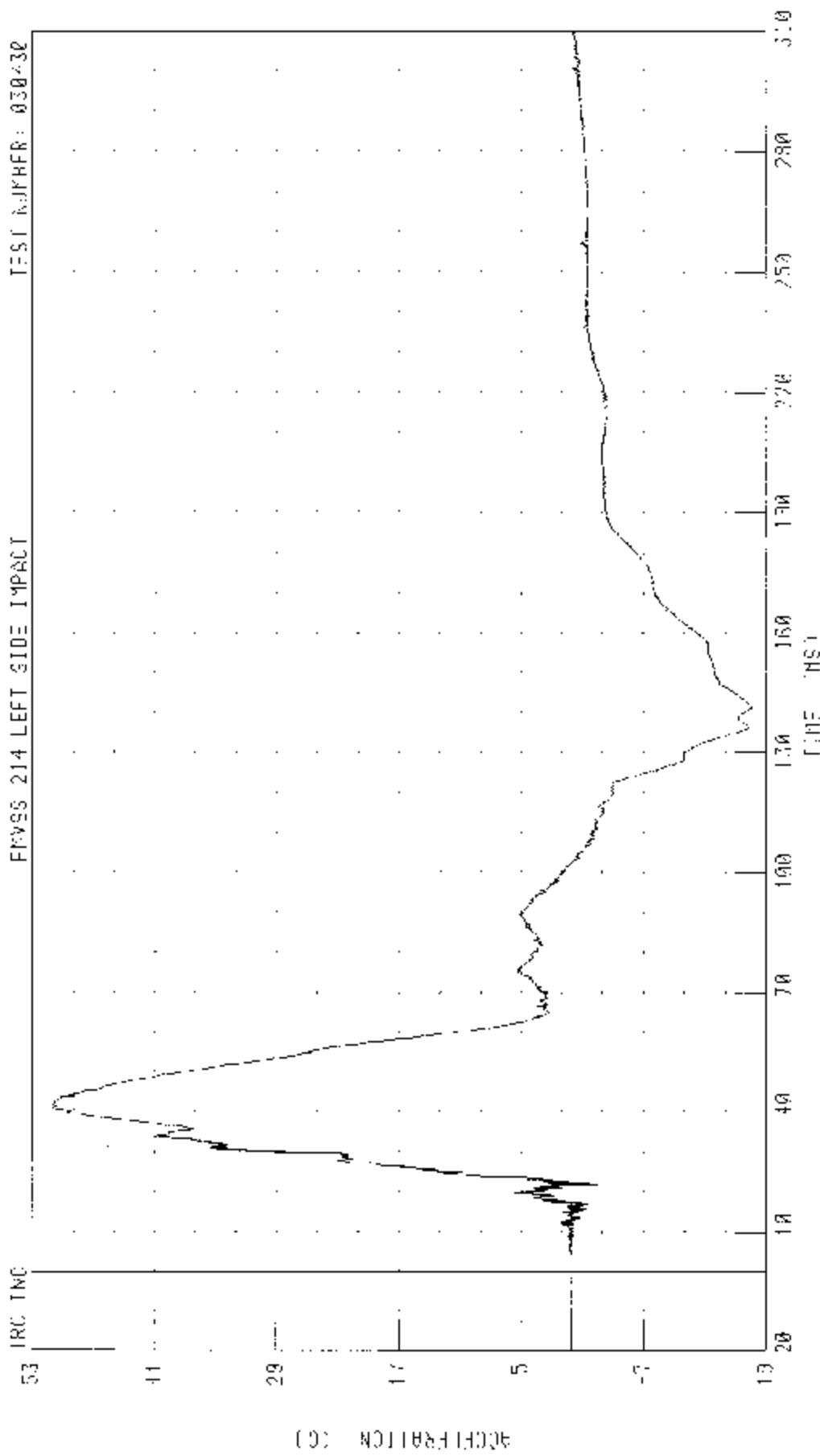
PHYS DATA 0.02 ENH 0 17 84 015; -19.51 231 10 123 62 015

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER SEAT V AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



CHANNEL: HEJYUJ FILTER: CH CLASE 1000

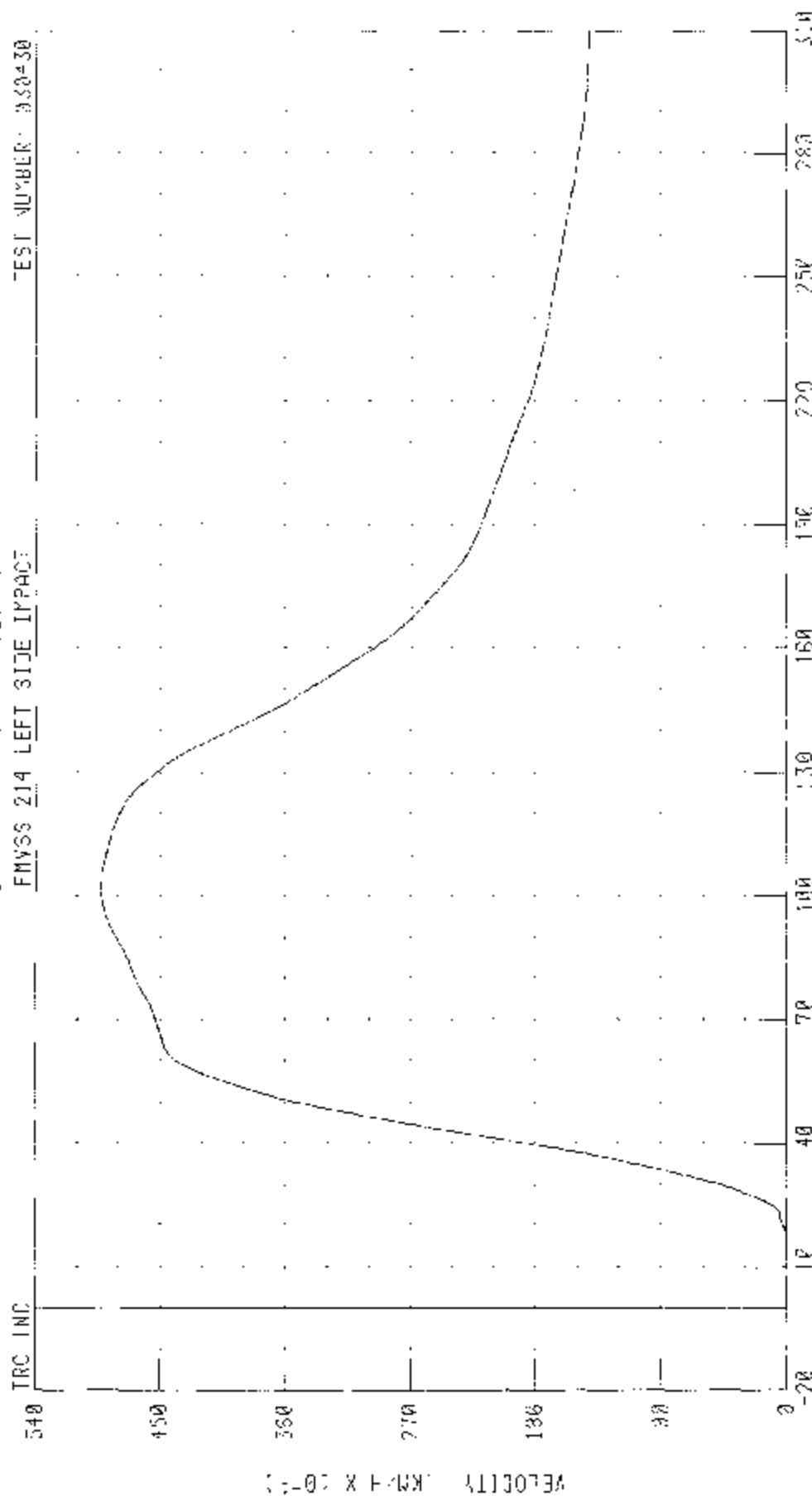
PEAK DATA: 50.47 G @ 42.80 MS; -17.32 G @ 141.23 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INIT LEFT SIDE CP 2003 RW 025

DRIVER 4RAJ Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 930430



130 ms

CHANNEL: 4EDYV1 FILTER: 3K CLASS: 130

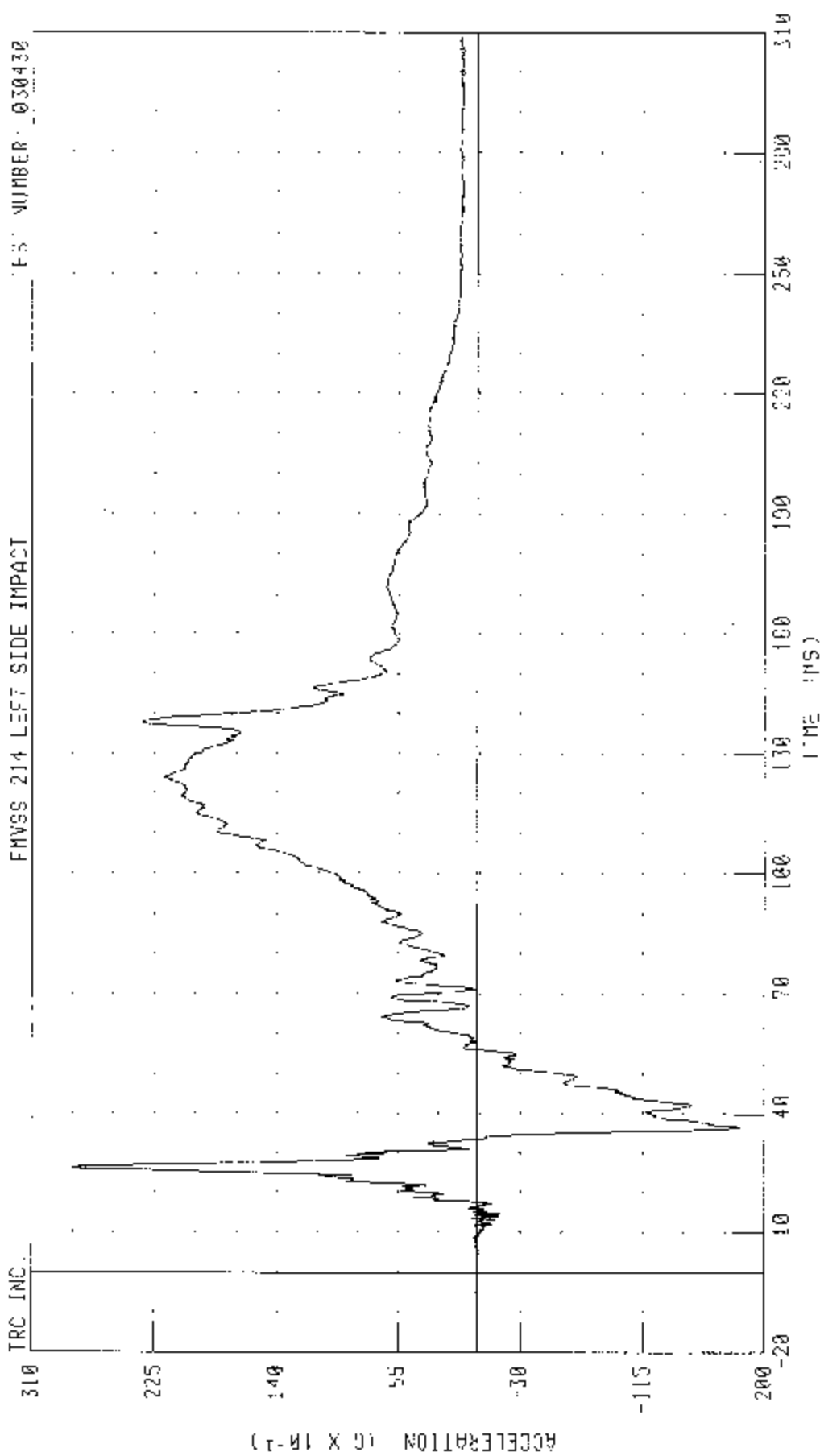
PLAK DA 3 40 20 414 3 102 22 FS 0 20 01/1 9 2 00 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

CHANNEL HED201 FILTER CUT. CLASS 1000

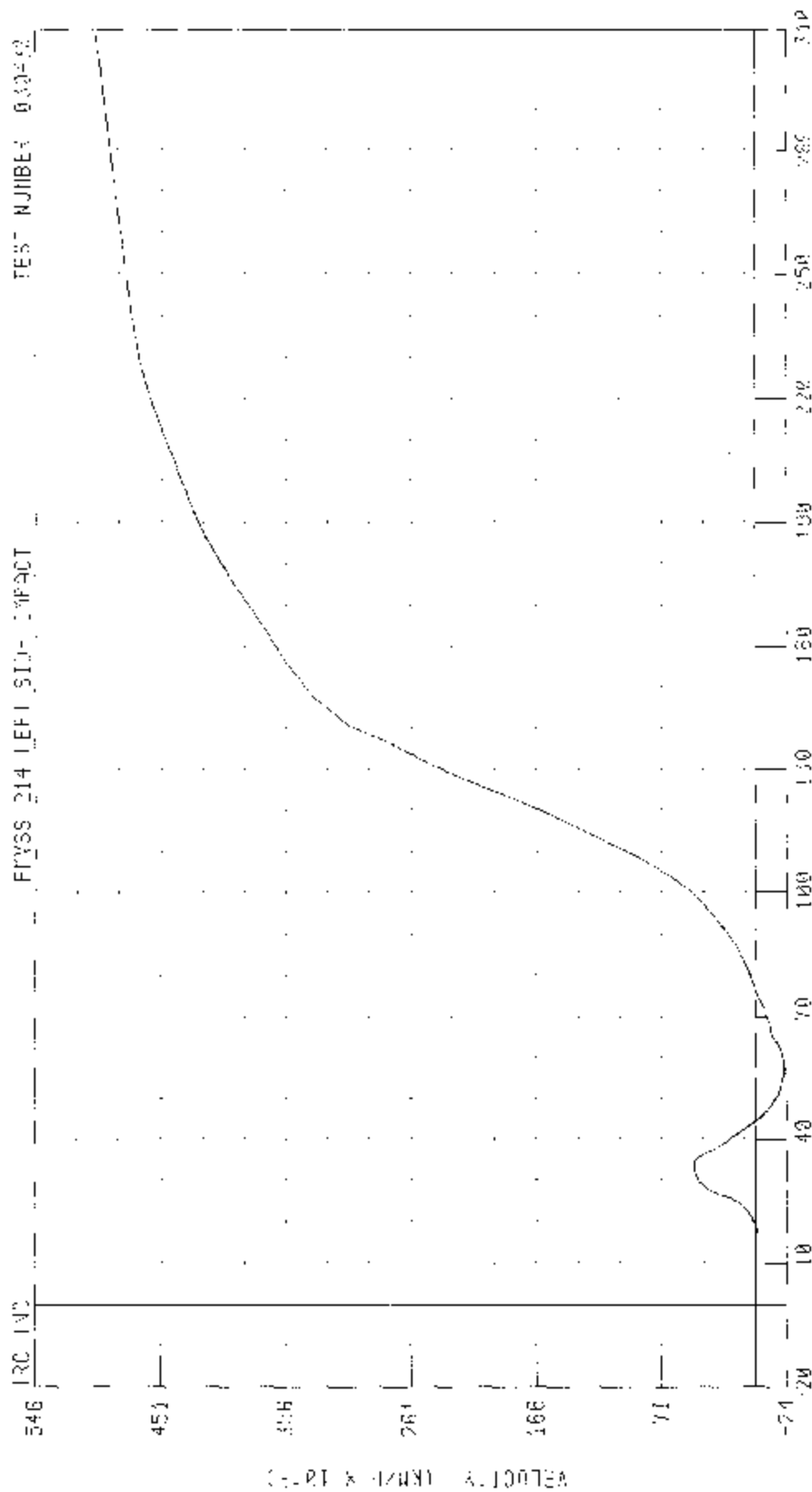
PEAK DATA 28 13 0 0 28 21 19, -18 53 0 0 36 32 NS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD 2 AXIS VELOCITY

FLYSS 214 LEFT SIDE IMPACT

TEST NUMBER 0430-02



TIME (MS)

CANAL 1 HERTZ FILTER CH 1155 182

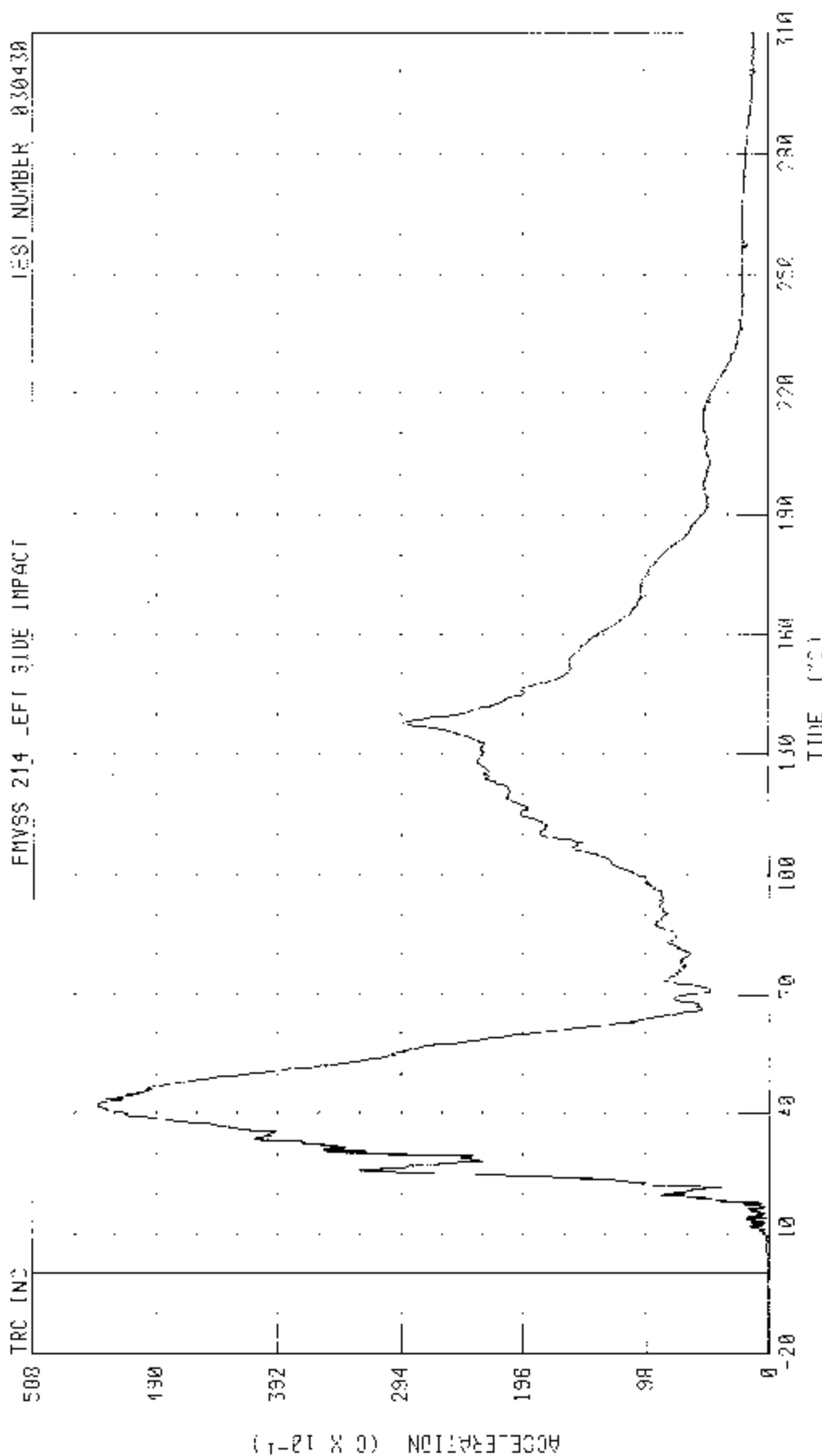
PEAK 1116 50 24 KPH 90 DEGREE SIDE IMPACT 0.55 0.05 MS

55/20 KPII 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



CHANNEL 1 - EDRG: L FTR CH CLASS 1200

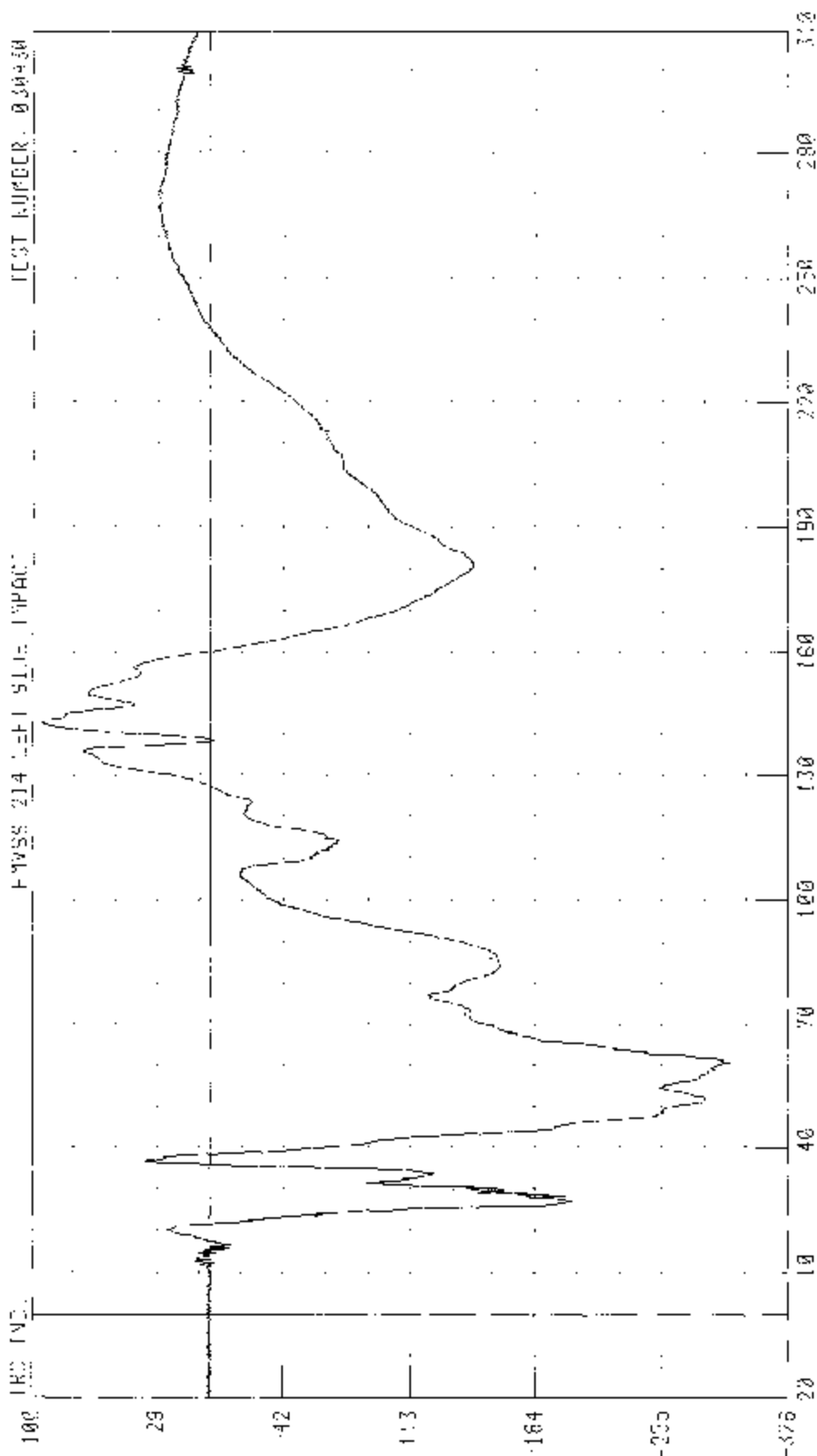
PEAK DATA 53.71 0 0 42.32 MS, 0.01 0 0 -20 00 Ys

55/28 <P4 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN O L-E-I SIDE OF CAR'S HW 5251

DRIVER NECK X AXIS S-LAR FURCH

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



(N) FORCE

TIME (MS)

CHANNEL: NECKX51 FILTER: CH CLASS: 102A

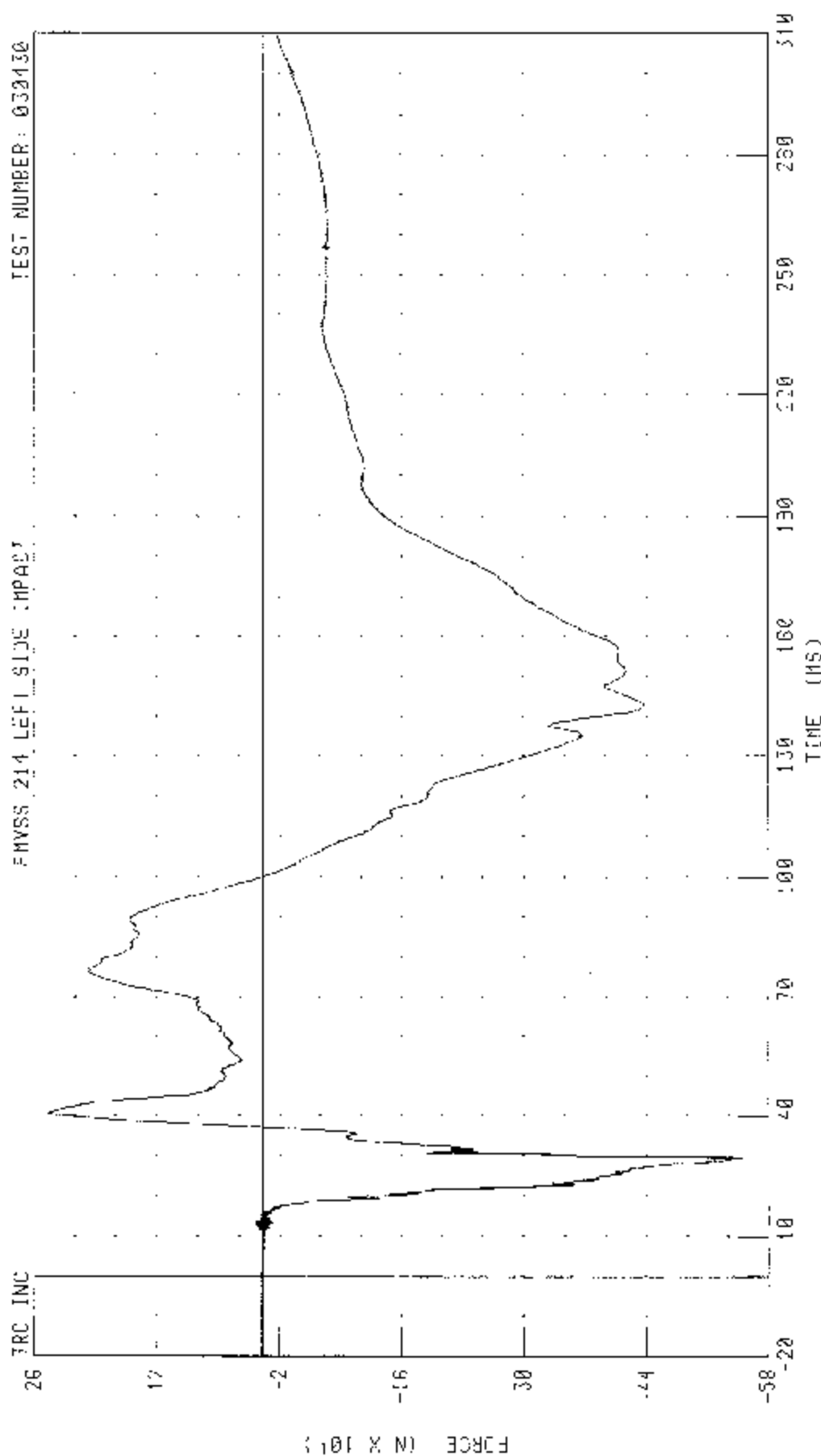
CLAR DATA 04 00 N 3 142 30 HG 297 30 N 0 50 04 HS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING OFF-ROADABLE BARR FRT INTO LEFT SIDE OF 2003 BMW 325i)

DRIVER NECK Y-AXIS SHEAR FORCE

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 032430



CHANNEL: NECKY21 FILTER: CH: CLASS: 1000

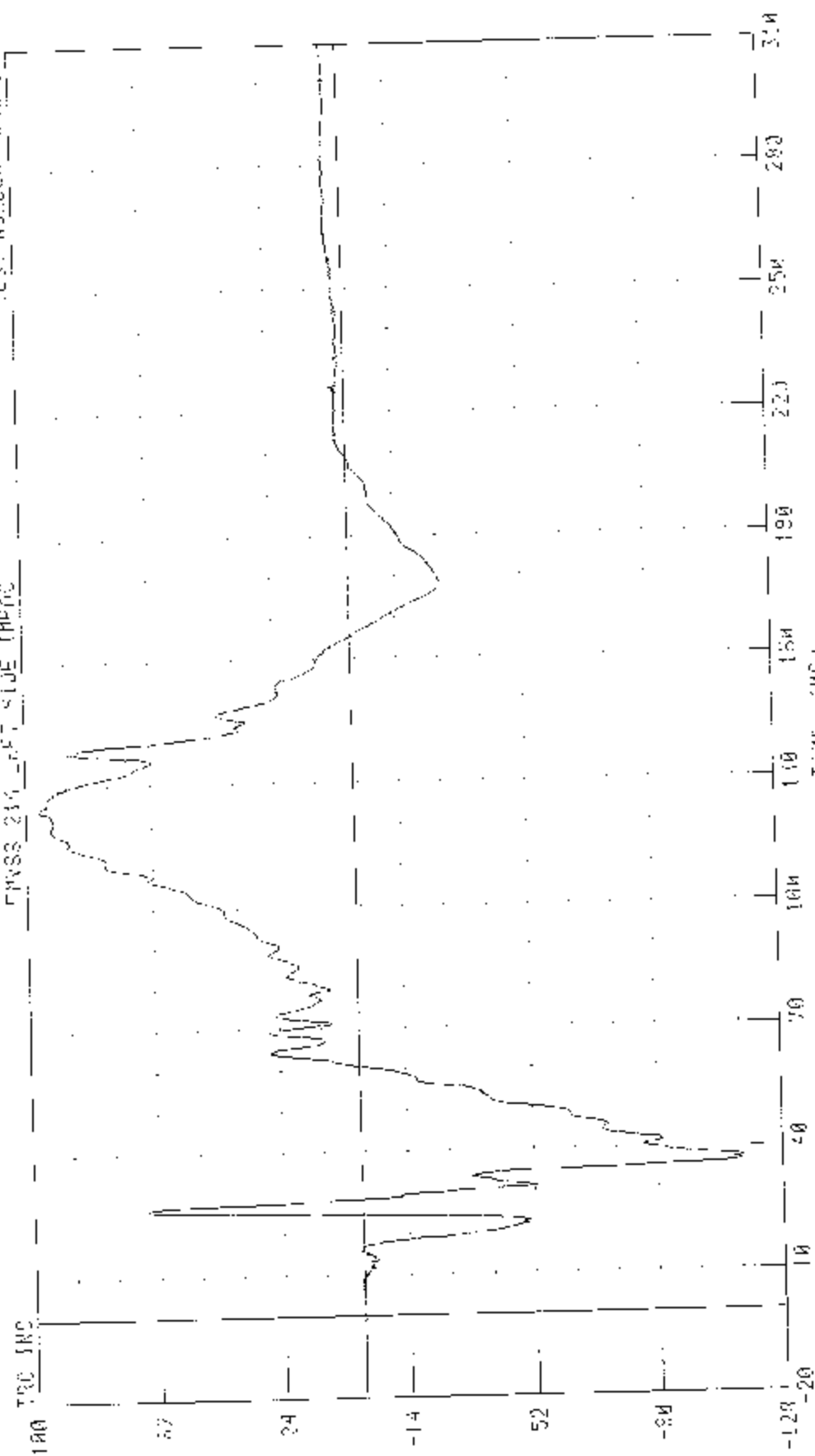
PEAK DATA: 245.24 N @ 40.38 MS; -549.60 N @ 20.10 MS

55/28 MPH 30 DEGREE GOLF IMPACT MOVING DETECTOR, F BARRIER, INTO LEFT SIDE OF 2003 BMW 320i

DRIVER W/OK 7 AXIS AXIAL FORCE

FWSS 234 LEFT SIDE IMPACT

TEST NUMBER: 00430



TIME (MSEC)

CHANNEL: MKZF1 FILTER: CH 0 USE 1000

PEAK DATA: 004 52 V 8 101 24 MS, -1160 40 V 8 37 70 V

(10: X N) 3000-

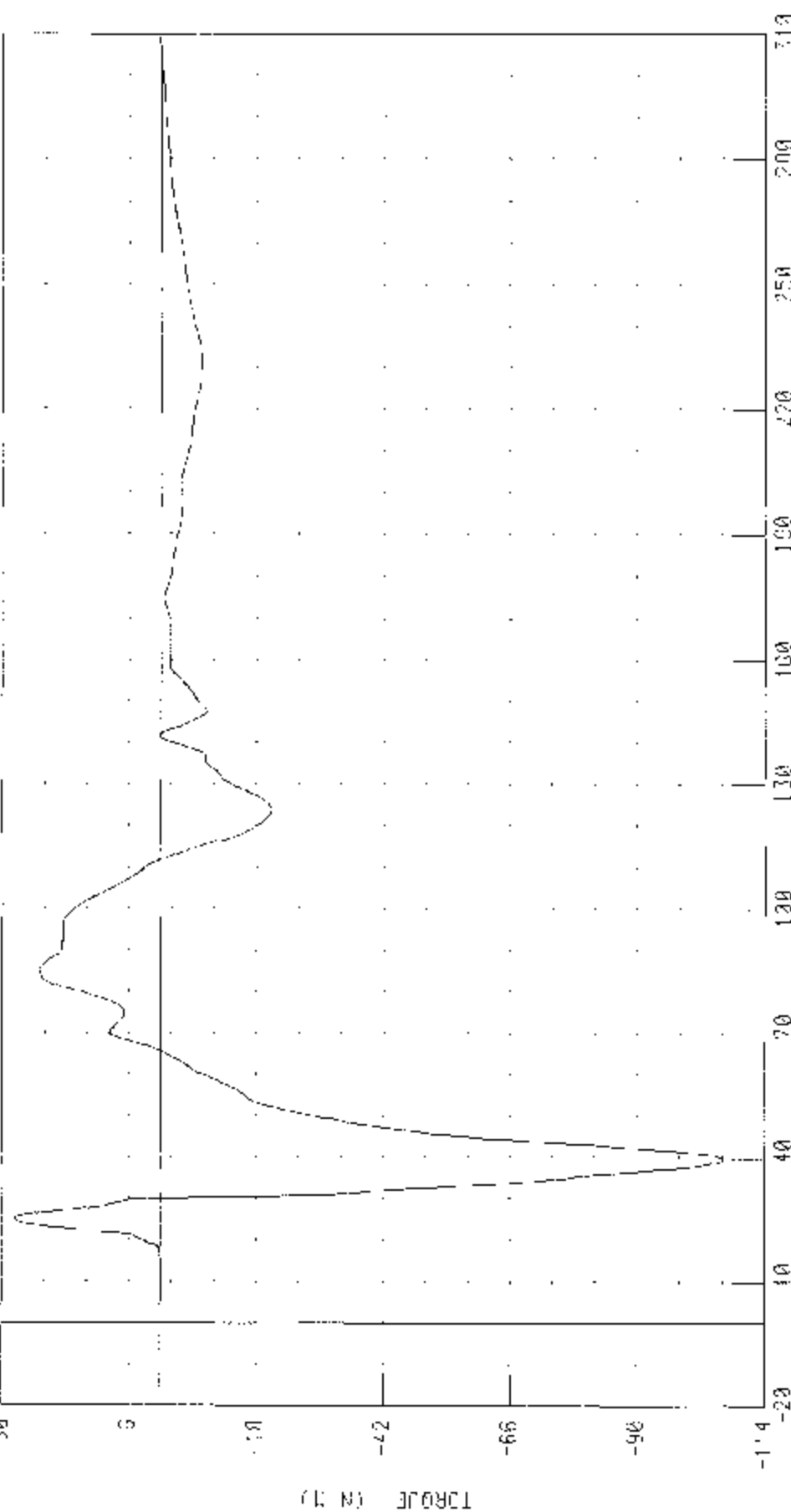
55/23 KFH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER: IN-0 LEFT SIDE OF 2003 ENW 3251

DRIVER NECK MOMENT ABOUT X AXIS

(R) UNL

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030030



TIME (MS)

CHANNEL NECKM1 FILTER CH CLASSE 600

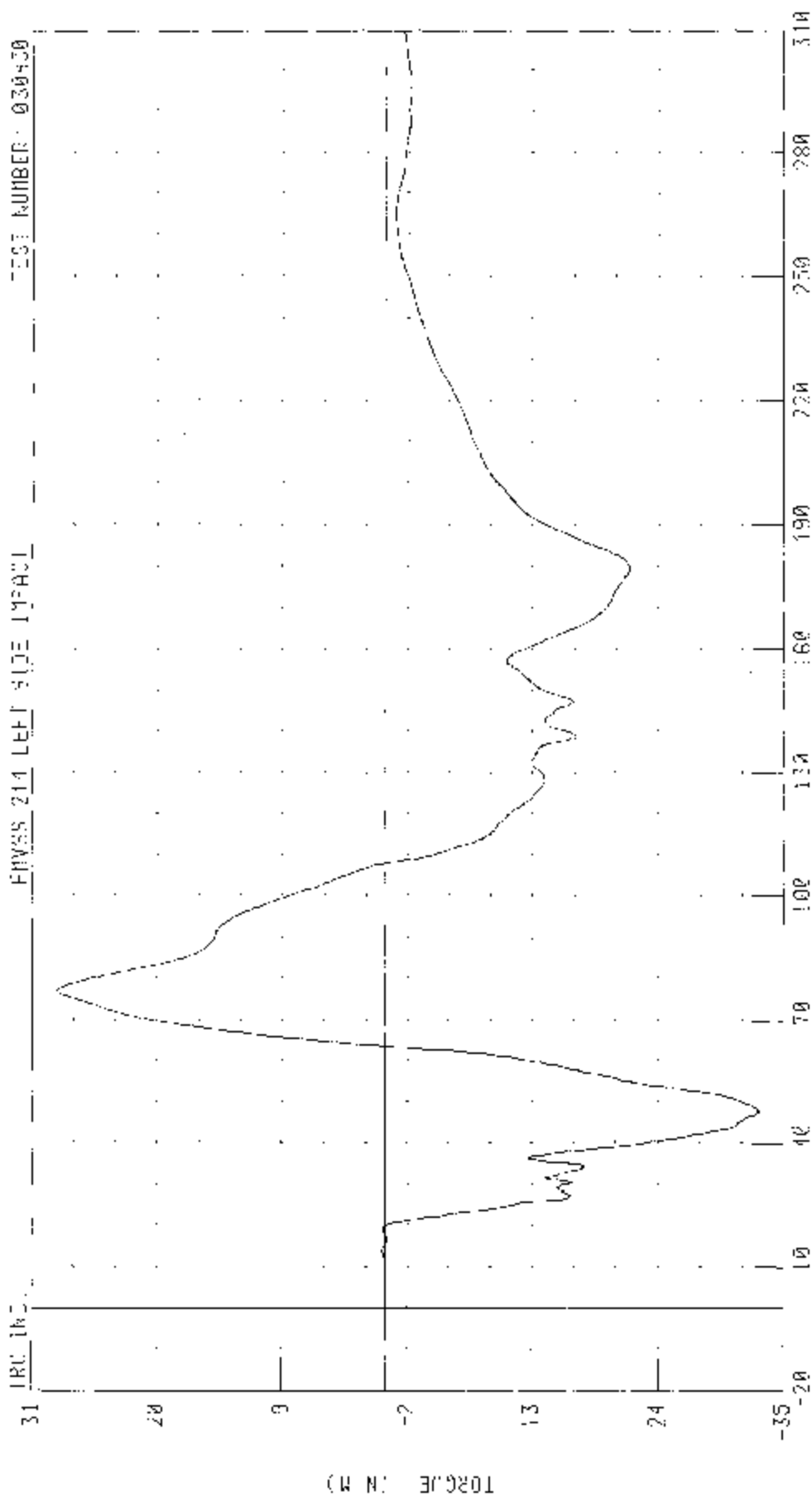
FILE DATA 27 37 N F 0 25 36 75, -106 25 N D 39 44 13

55/20 KP4 92 DEGREE SLIP IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2403 RFW 3251

DRIVER NECK HEIGHT ABOUT Y AXIS

FRYSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



TIME (MS)

CHANNEL: VELOCITY FILTER: CH: CROSS: 600

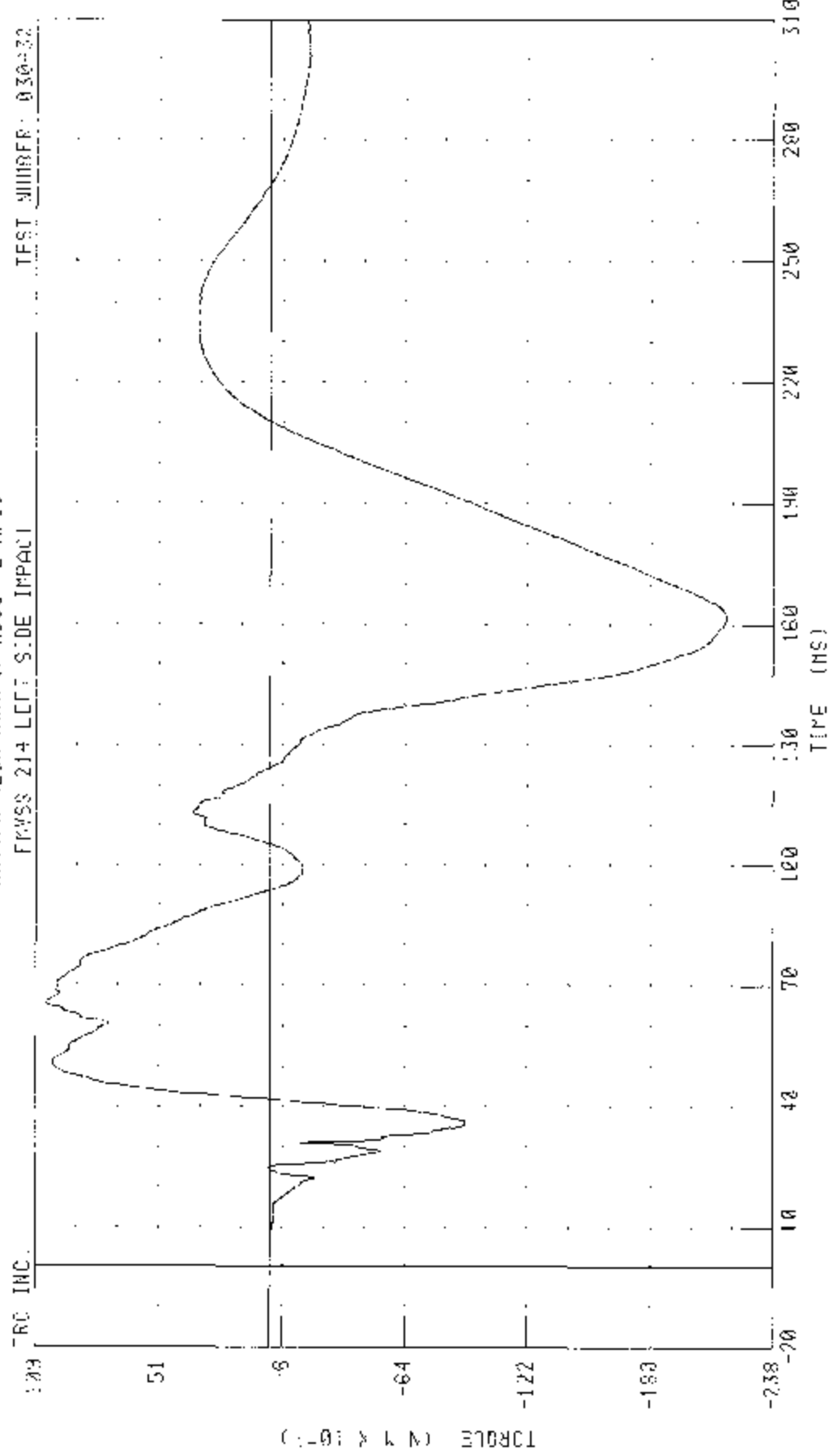
PEAK DATA: 20 02 N.E.W. 70 20 MS, -32 04 N.E.W. 47 24 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER NECK MOMENT ABOUT Z AXIS

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT

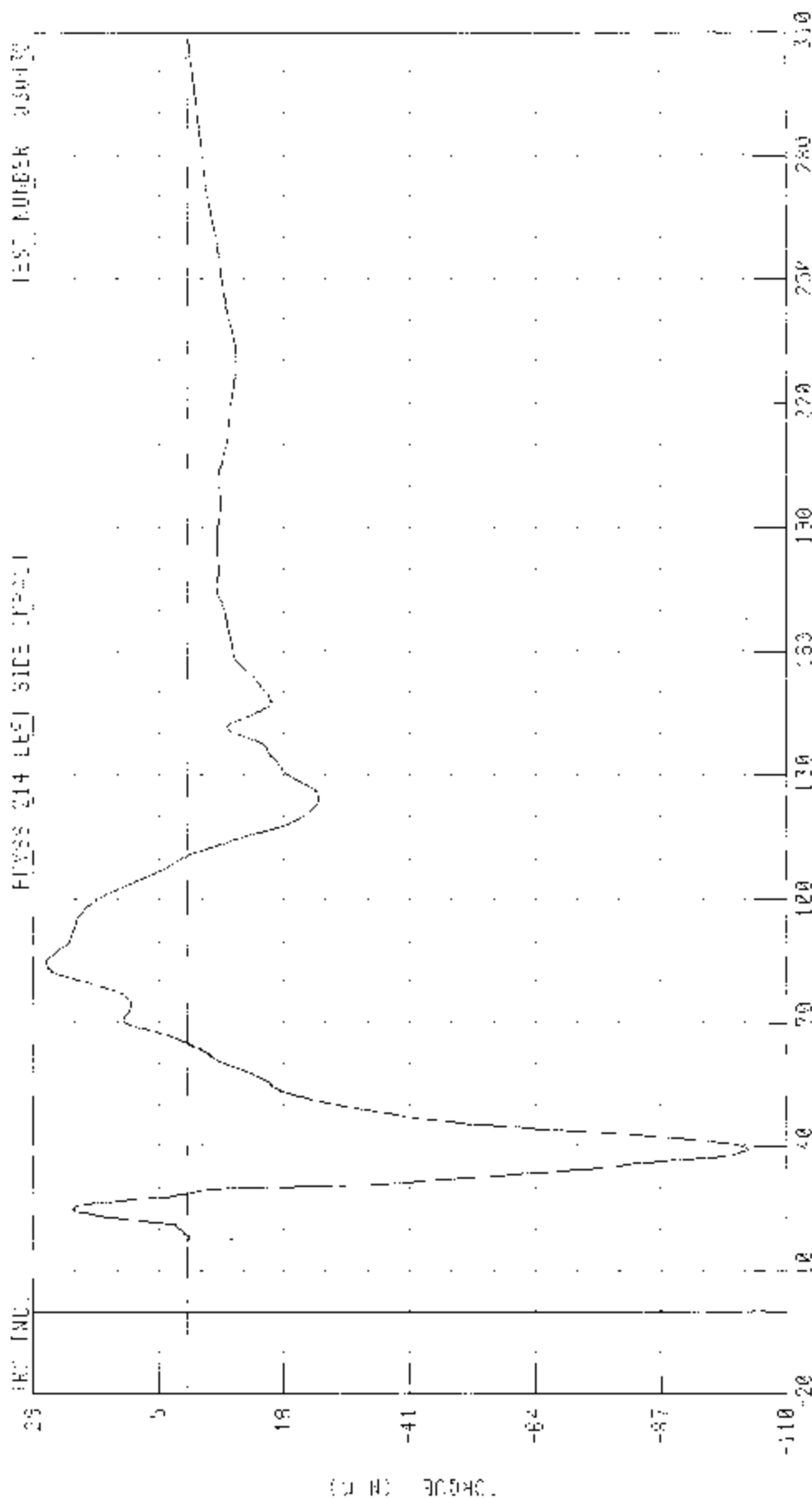


PEAK DATA 10 51 40 65.76 MS, -21 59 41 101.70 MS

CHANNEL NECKMOM FILTER C- CLOSS 200

55/73 KPH 00 DIGRPH 510- INF401 IMPVING, INFORMATION: REPORTED THRU 14-1 314 OF 2023 BYW 3294

DRIVER ADOX OCCUPANTIAL CONDYLE MOMENT ABOUT X AXIS



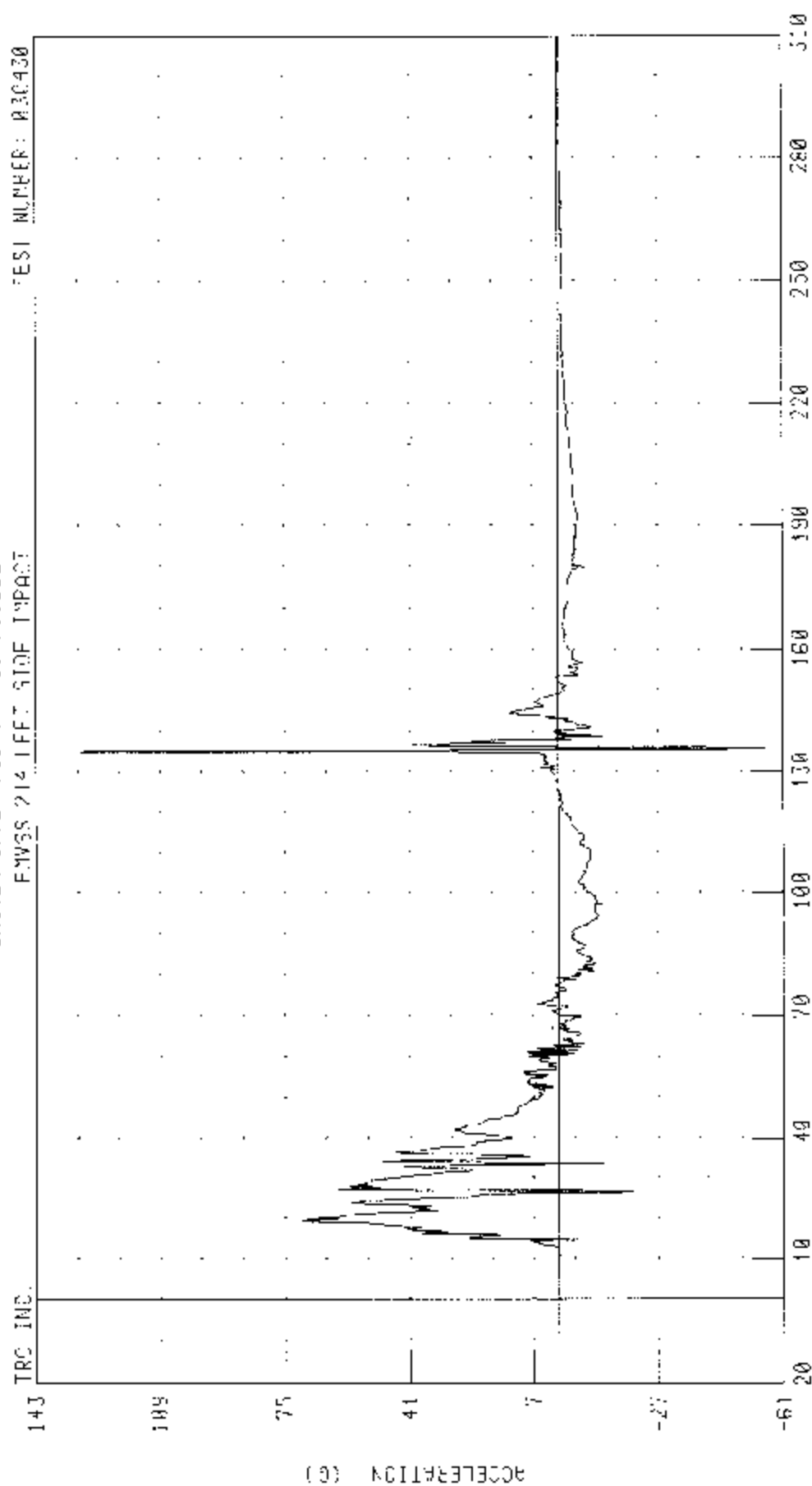
CHANNEL HK0011 FILIP2 00 CLASS 000

PEAK DATA 20 62 1.00 W 84 90 MP, 103 27 N-1 9 29 20 NS

55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER UPPER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: R30430



TIME (ms)

CHANNEL LURYG1 FILTER: 0.5 CLASS 1000

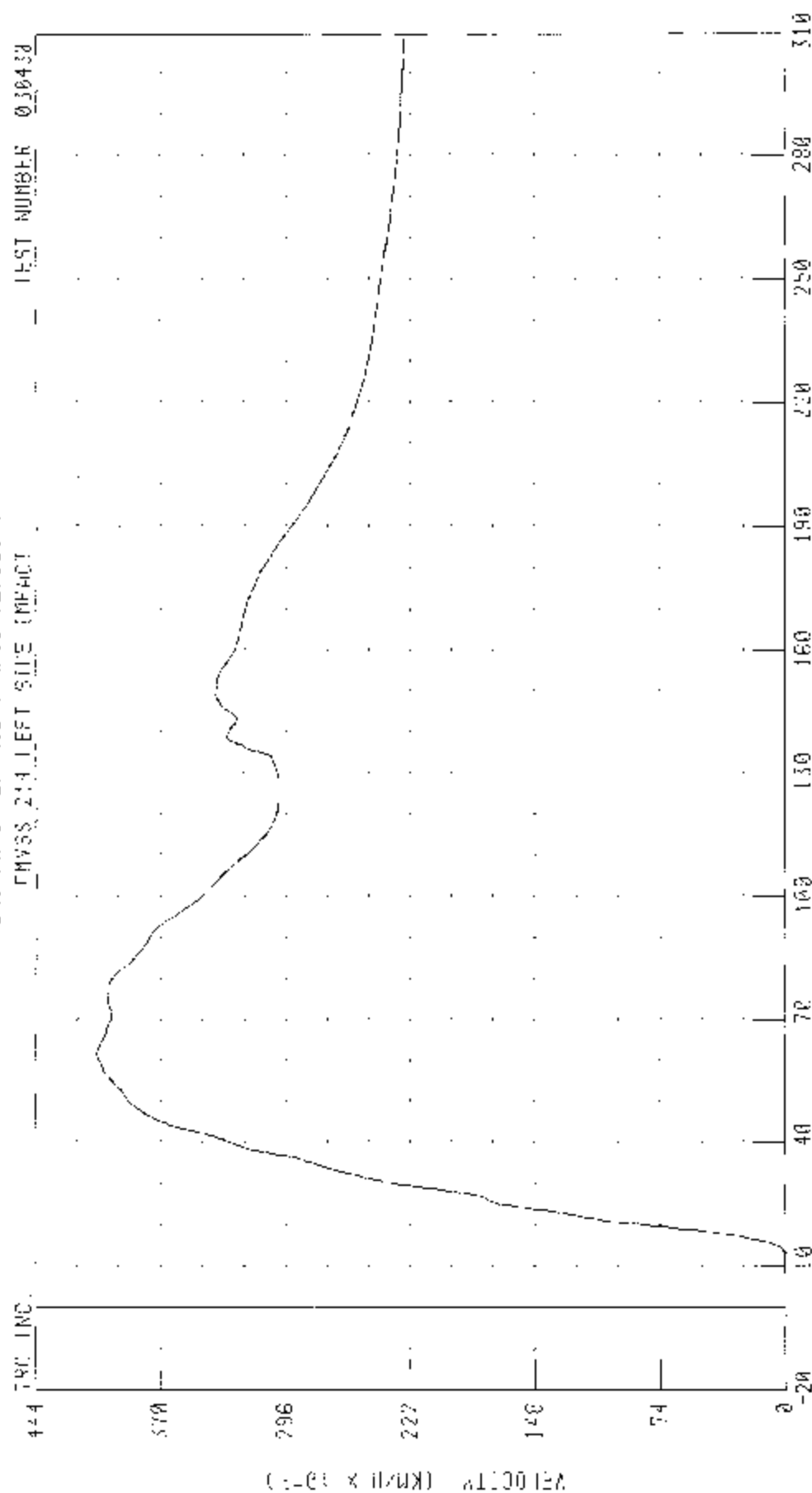
PEAK GAP 130.00 0 135.28 MS, -58.07 G @ 135.32 MS

54-28 KPH 90 DEGREE SLIP IMPACT (MOVING DEFERRIBLE BARRIER) INTO LEFT SIDE OF 2003 BMW 525i

CRUISE UPPER SUB Y-AXIS VELOCITY

FNVS8 214 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

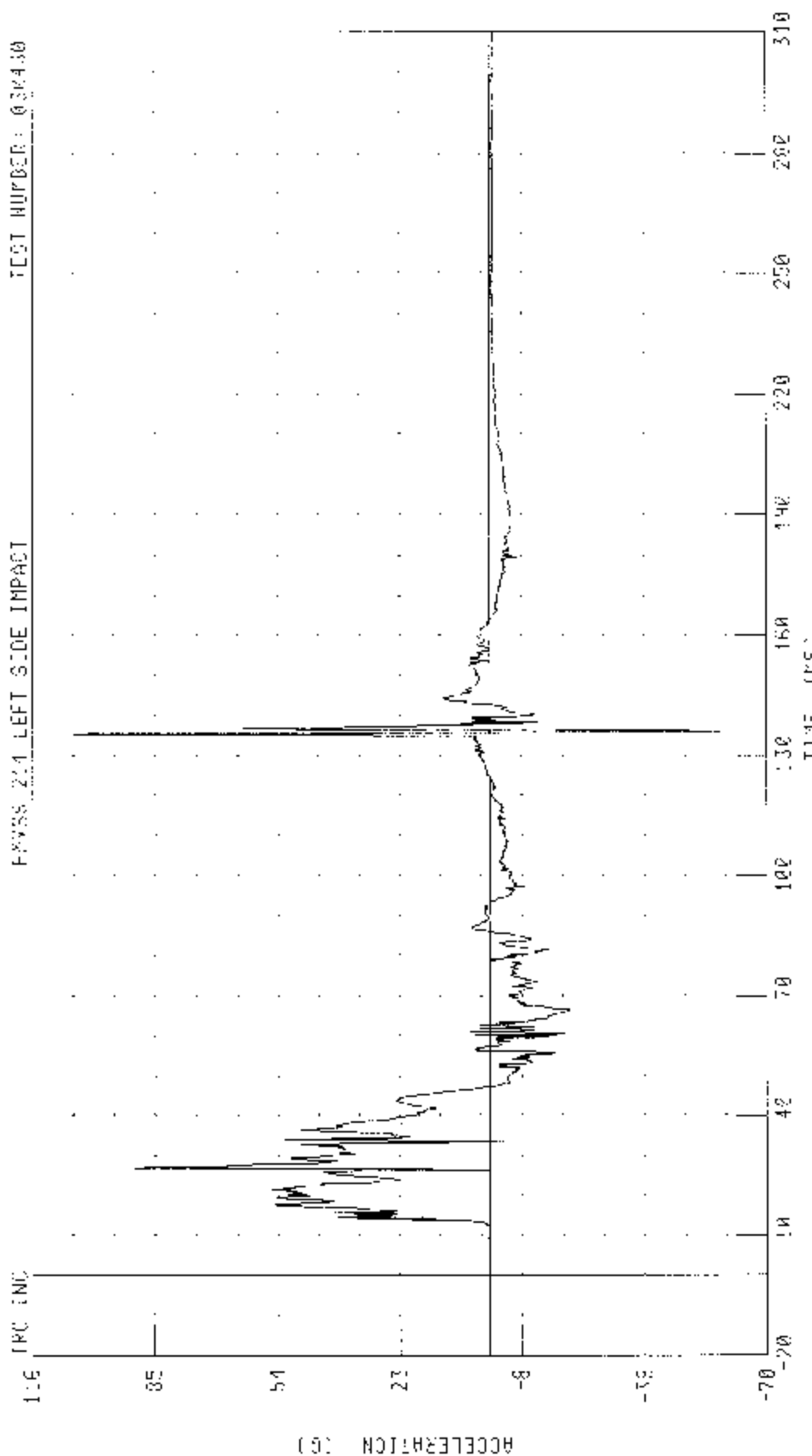
CHANNEL -JRYV1 FILTER -ON CLASS 190

030430 40 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER LOWER RIB Y AXIS ACCELERATION

TEST NUMBER: 030430



CHANNEL: LUXY01 FILTER: 34 CLASS: 1000

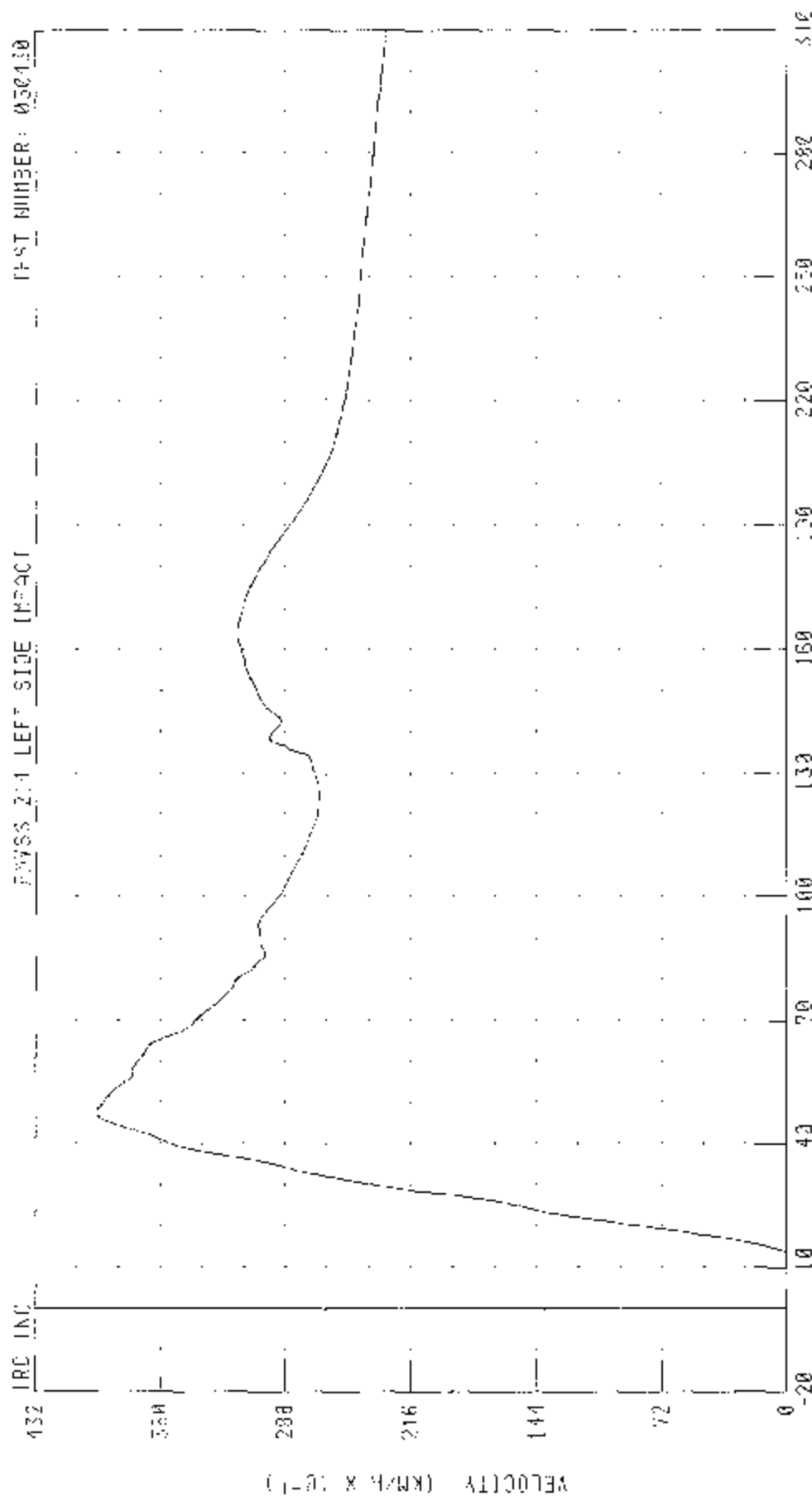
PEAK DATA: 140.16 G @ 135.28 MS; -84.21 G @ 135.42 MS

50/20 KPH 40 DEGREE SIDE IMPACT (MOVING DEFENDABLE BARRIER) INTO LEFT SIDE OF TRUCK RWY 0251

DRIVER LOWER RIB V-AXIS VELOCITY

TEST NUMBER: 030430

FWSS 2.0 LEFT SIDE IMPACT



TIME (MS)

CHANNEL LIRYV1 FILTER C-1 2155 180

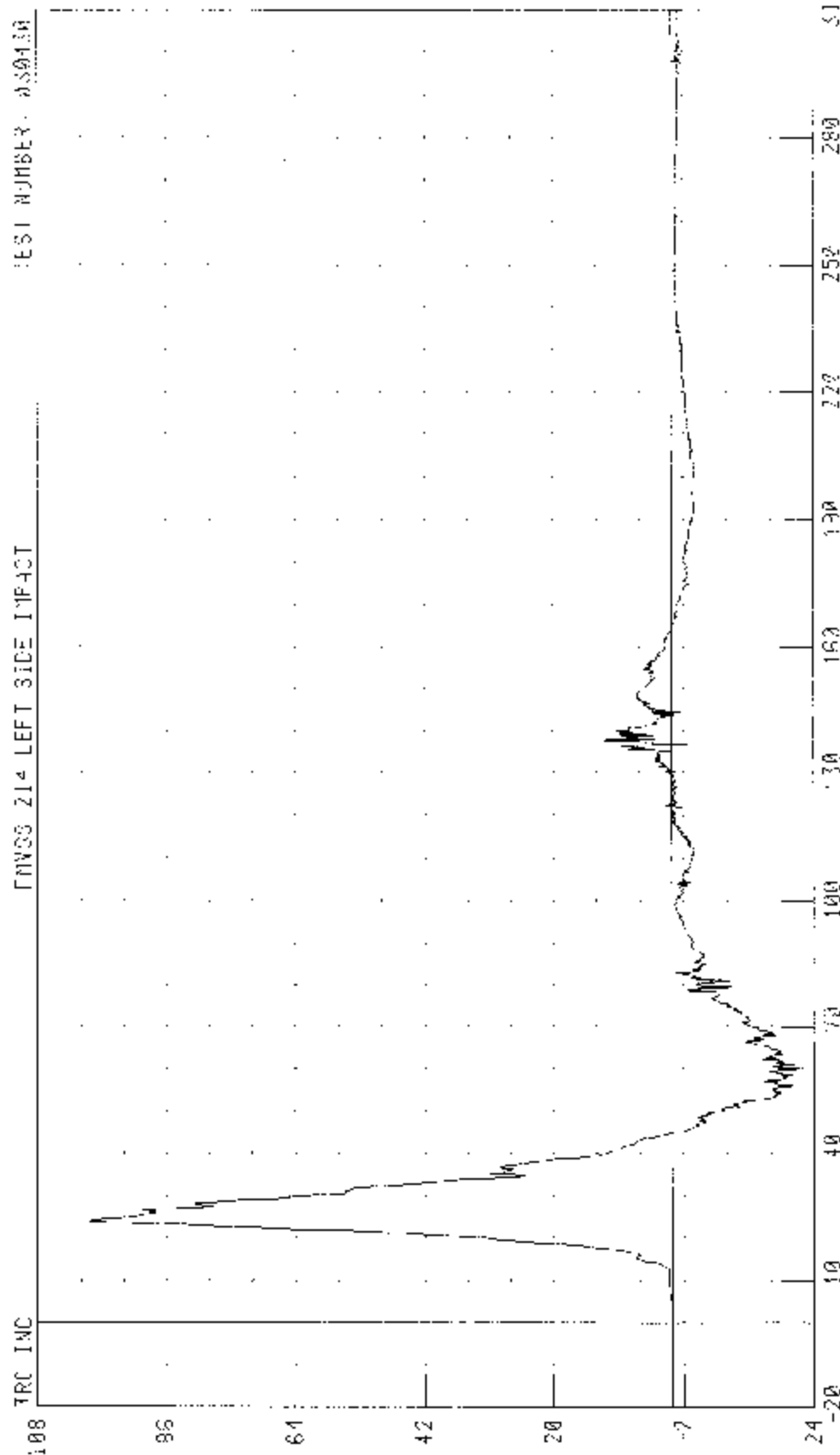
TEST DATE: 04 03 01-H W 47 44 MS: V CW XPL-F # : 10 HS

55/28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 R/W 3251

DRIVER LOWER SPINE Y-AXIS ACCELERATION

ENV00 214 LEFT SIDE IMPACT

TEST NUMBER: 050410



TIME (MS)

CHANNEL: 112Y01 FILTER OFF 0.000 1000

PPH# DATA 99.02 G @ 24.21 MS, -22.21 G @ 29 MS

(9) NC148777006

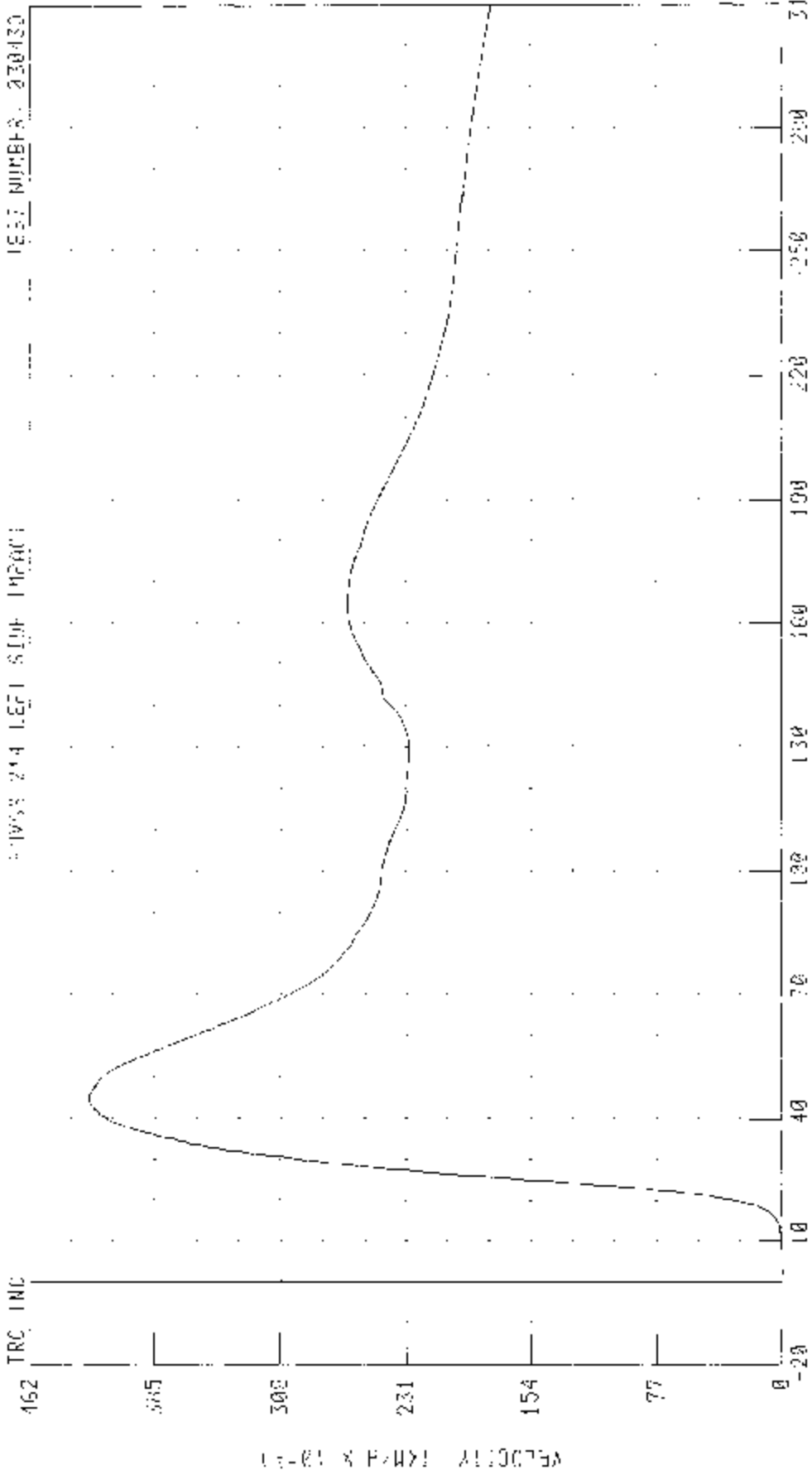
5000 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 GAW 3250

DRIVER LOWER SPINE X AXIS VELOCITY

CRASH 214 LEFT SIDE IMPACT

TEST NUMBER: 230430

TRC INC



TIME (ms)

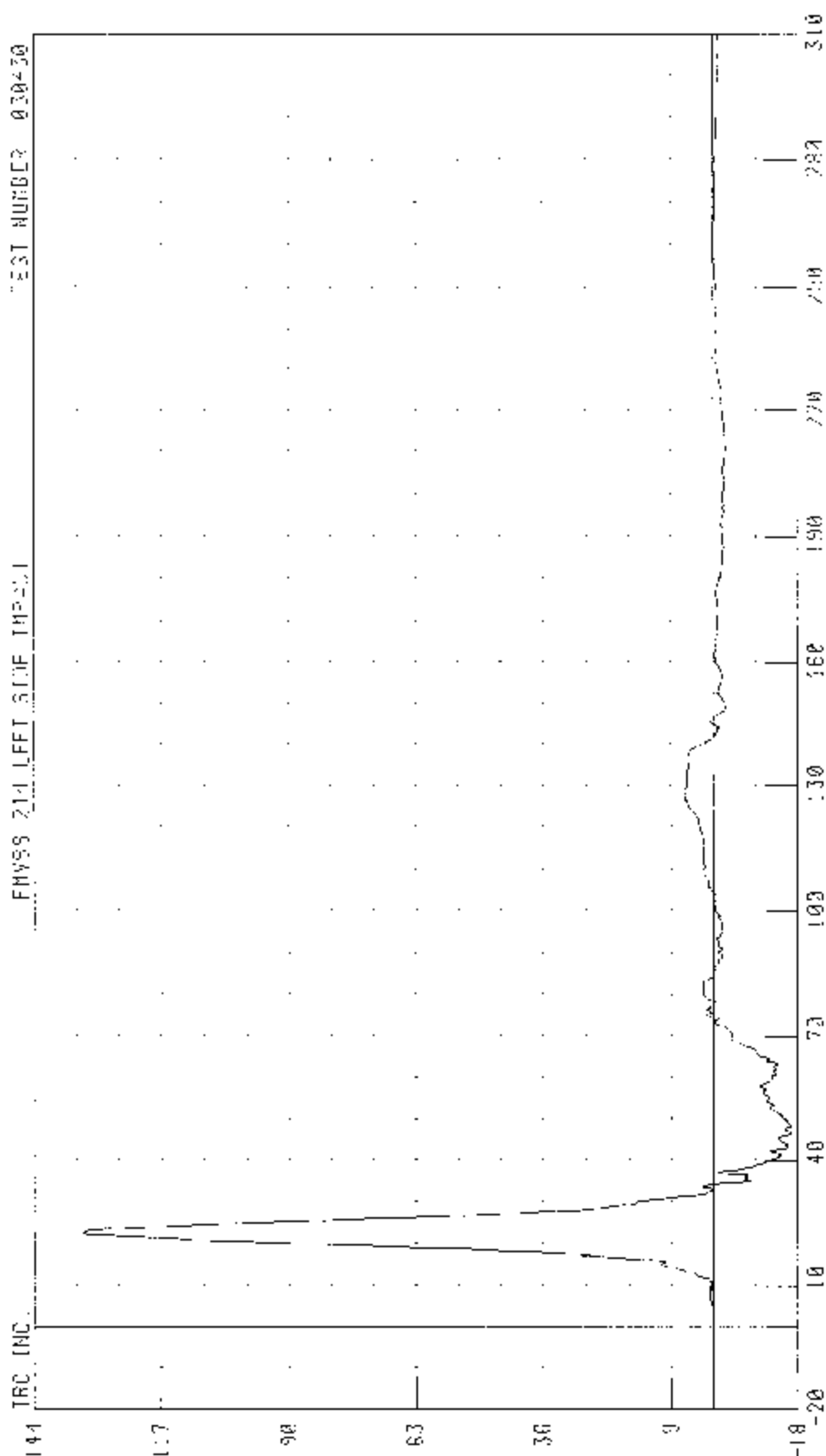
CURVE: T1291 FILTER CH. GLOSS 180

FILE: C:\T1291\4254\CH 0 14 96 18: 0 70 XPH 3 3 70 MS

55/23 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMER & BARRIER) INTO LEFT SIDE OF 2003 D/W 3251

DRIVER PELVIS Y-AXIS ACCELERATION

PHYS 214 LEFT SIDE IMPACT TEST NUMBER 030430



ACCELERATION (G)

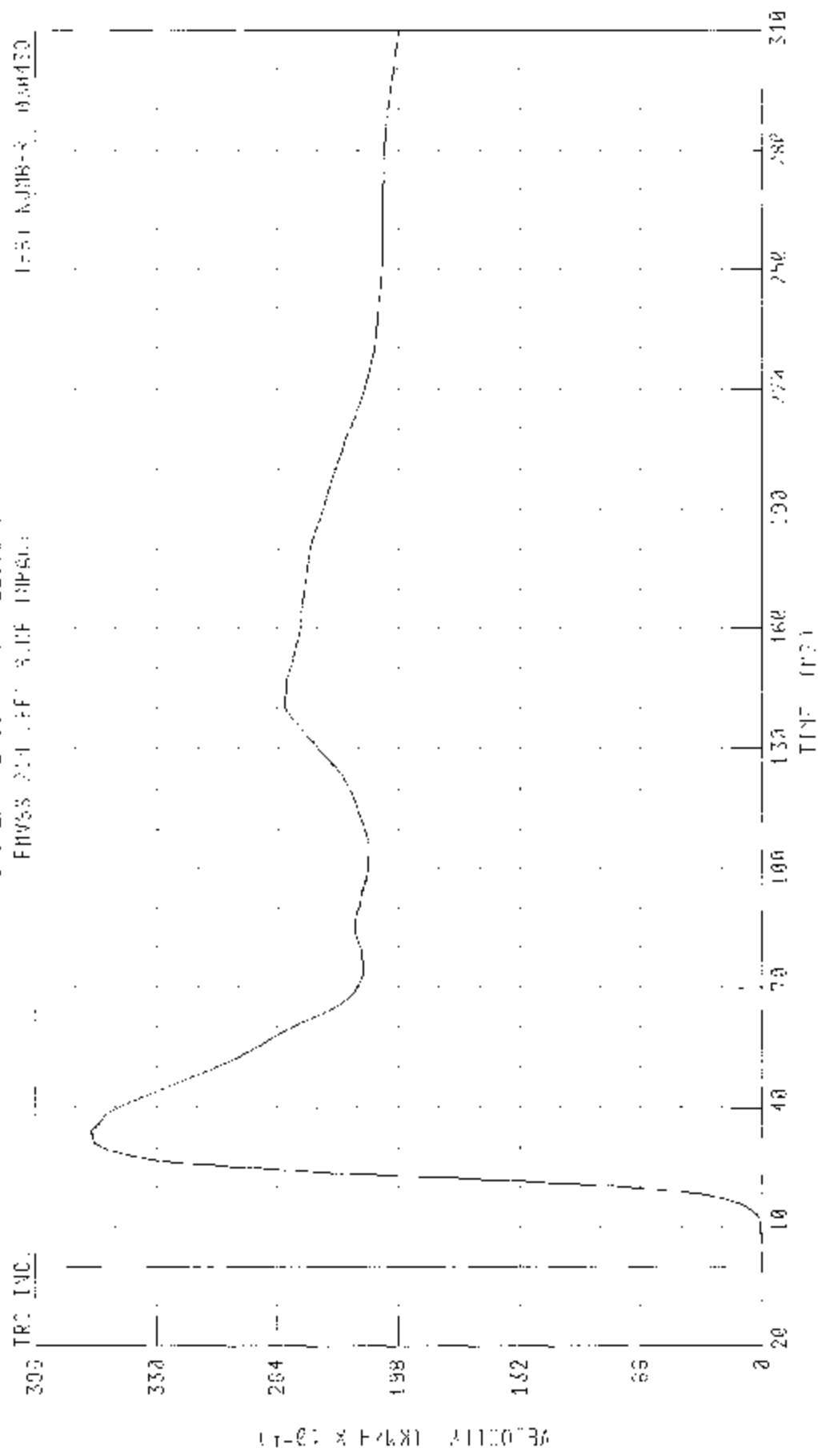
CHANNEL: PEVYG1 FILTER: CH CLASS: 1000

PEAK: 144.19 133.77 6.77 40.19 -16.73 0.9 48.37 115

01/28 KPH 30 D-CREE SIDE TRACI CNOVING DECURABLE BARRIER INTO I-55 SITE IF 2003 PHW 8/01

CRIVER PELVIS V 9000 VELOCITY
 FVSS 201 LFP SIDE IMPACT

1-51 KJMB-8, 000430



01-01 X F 481 ATT 00-36

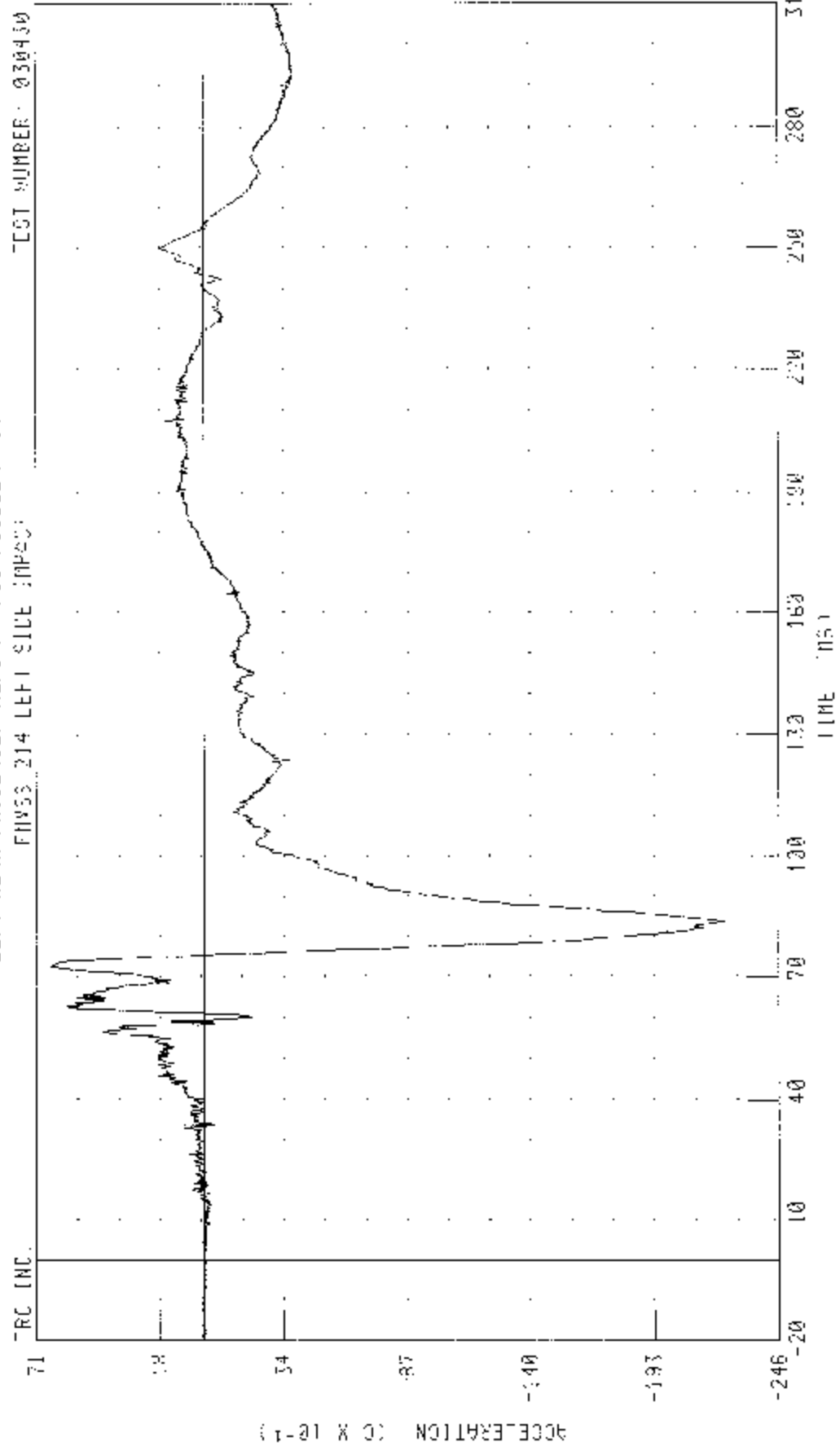
TIME (ms)

CHANNEL PEQV4 FILTER CH CLASS 120

PEAK DETE

31.52 PPH 2.33 8.715. 0.20 KJMB 8 000 PS

55/20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2005 BMW 325i
 LEFT REAR PASSENGER HEAD X AXIS ACCELERATION

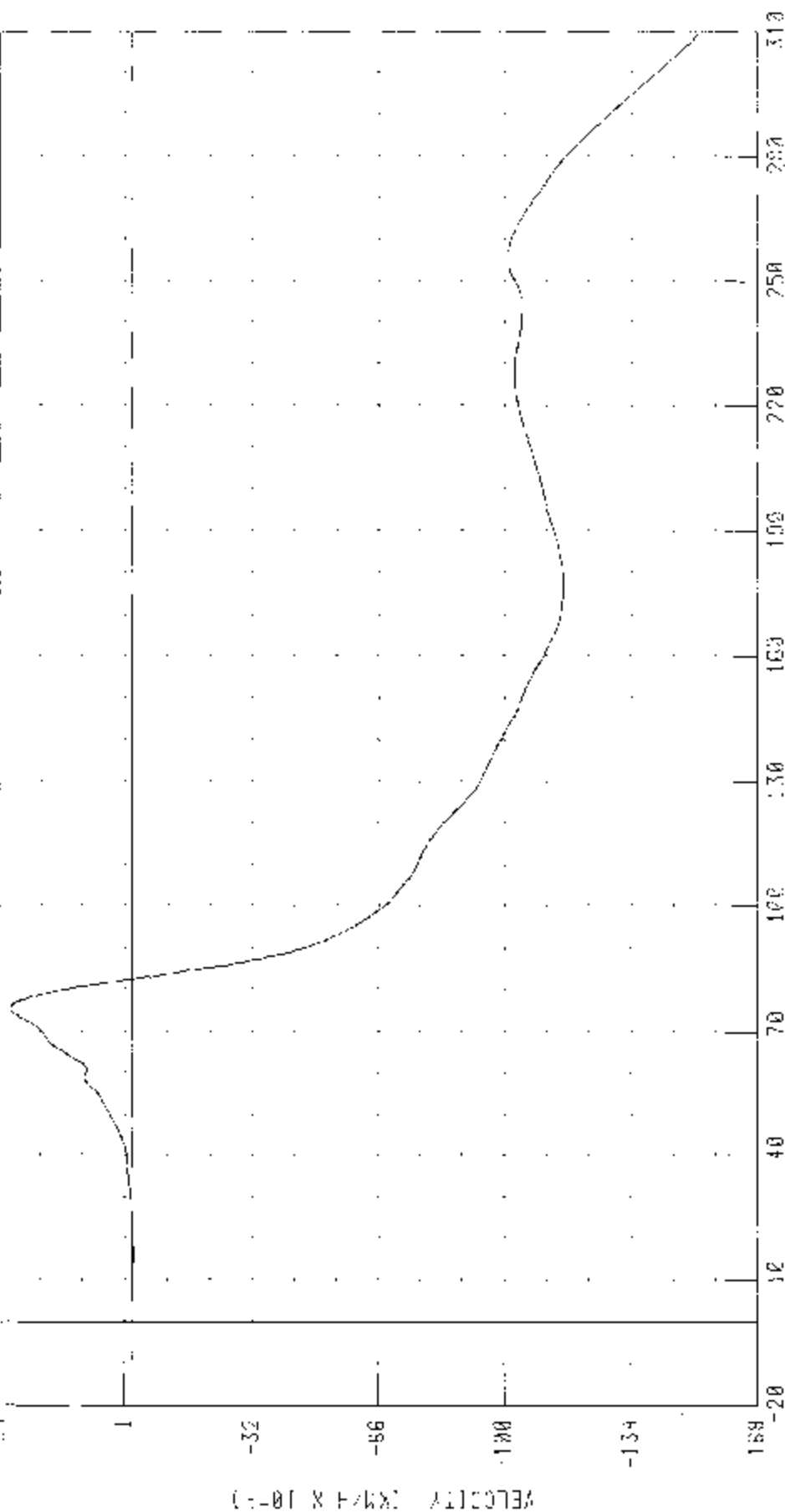


CHANNEL: HEADX04 FILTER: 4H CLASS: 1000 PEAK DATA: 0.83 G @ 72.50 MS, 22.32 G @ 93.63 MS

55/20 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN10 CFT SIDE OF 200.1 BFW 325-

LEFT REAR PASSENGER HEAD X-AXIS VELOCITY

TRC INC. FVSS 214 LEFT SIDE IMPACT TEST NUMBER 030432



TIME (MS)

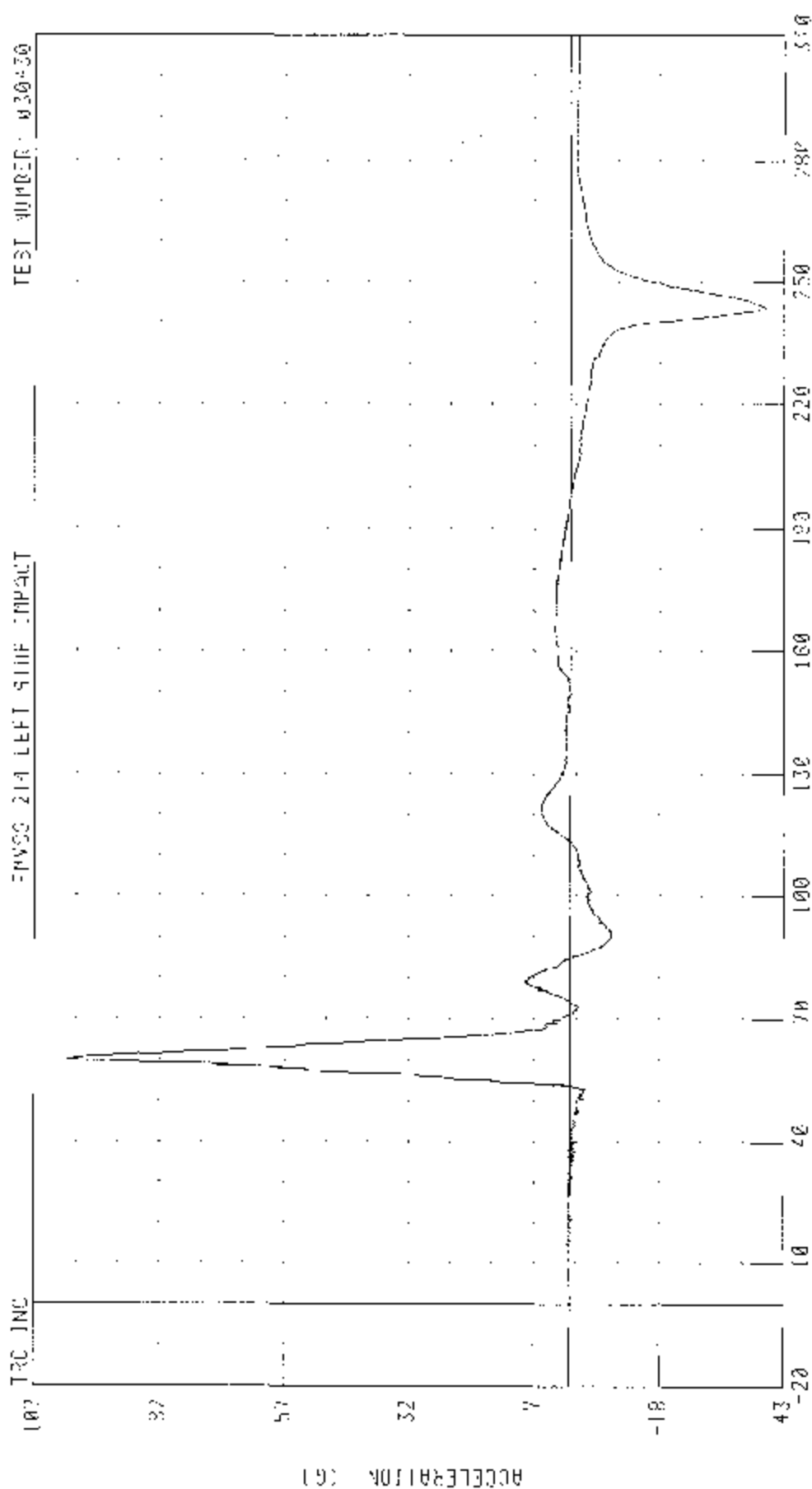
CHANNEL: H702Y4 FILTER: 0H CLASS: 180 PFAK DATA: 5.29 KPH/1 @ 75.02 MS, 10.26 KPH/1 @ 212.34 MS

55/28 KPH 30 DEGREE STD IMPACT (LYING DEFURABLE BARRIER) INTO LEP S.D.F. OF 2003 310 7051

LEFT REAR PASSENGER HEAD (-X)IS ACCELERATION

ENV50 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



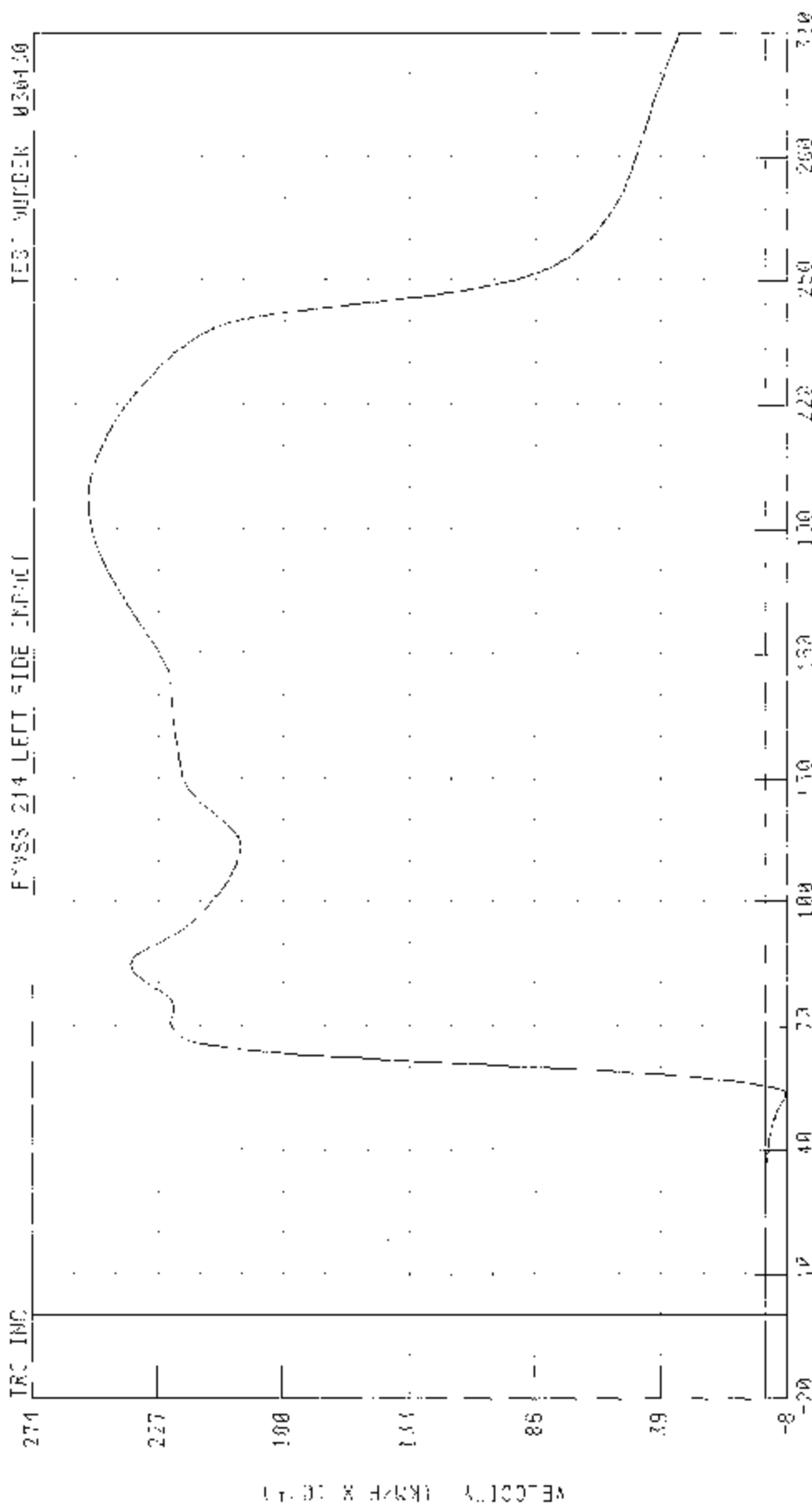
TIME (MS)

CH0001 ALLY04 FILTER: CH GLOSS: 0000

PEAK UP: 120 59 6 0 50 24 MS, -09 17 0 0 243 70 MS

53/20 KP190 DEGREE SIDE IMPACT MOVING DEFLECTOR HORIZONTAL 190 LEFT SIDE OF 2003 EPM 3251

LEFT REAR PASSENGER HEAD X AXIS DEFLECT



CHANNEL FIDV41 FILTER CH CLASS 190

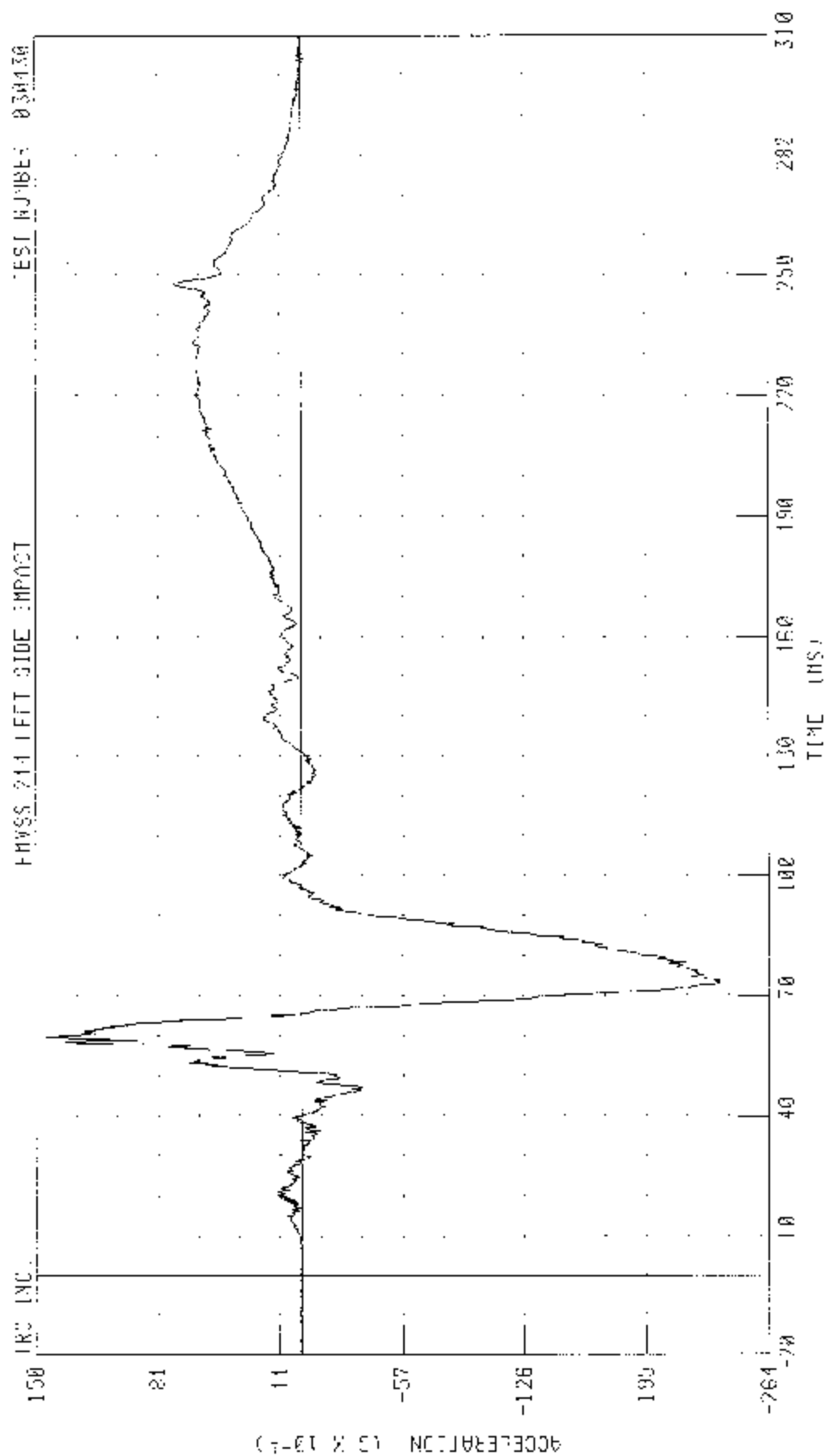
TIME (MS)

PASS 214 0 137 60 90, 0 70 90 0 53 50 10

55-26 KPH 9M DEGREE SLIP IMPACT (MOVING OFFSHORE BARRIER) INTO LEFT SIDE OF 2005 BHW 3/25

LEFT REAR POSITIONER EFFC Z-AXIS ACCELERATION

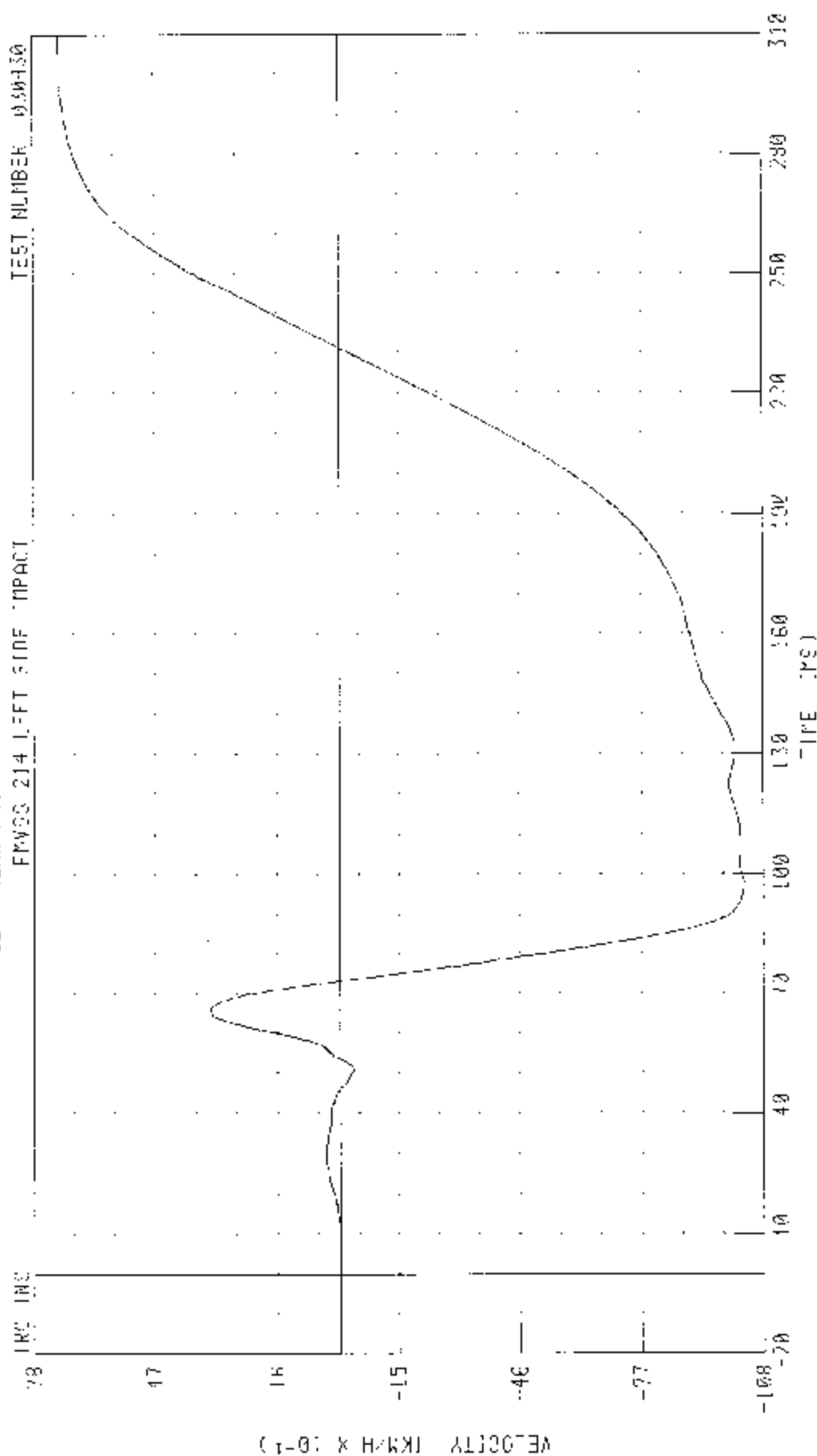
HWSS 214 LEFT SIDE IMPACT EST NUMBER 030430



CHANNEL: F0707 FILTER: CH. CLASS: 1000

PEAK TIME: 12.49 6.0 59.92 MS -23.62 0.2 73.28 MS

50/29 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF 2003 BMW (25)
LEFT REAR PASSENGER HEAD Z-AXIS VELOCITY



CHANNEL F=0294 FILE 01 CLASS 18A

PEAK DATA 7 15 4114 0 310.00 MS, -10.30 KM/H @ 27.38 MS

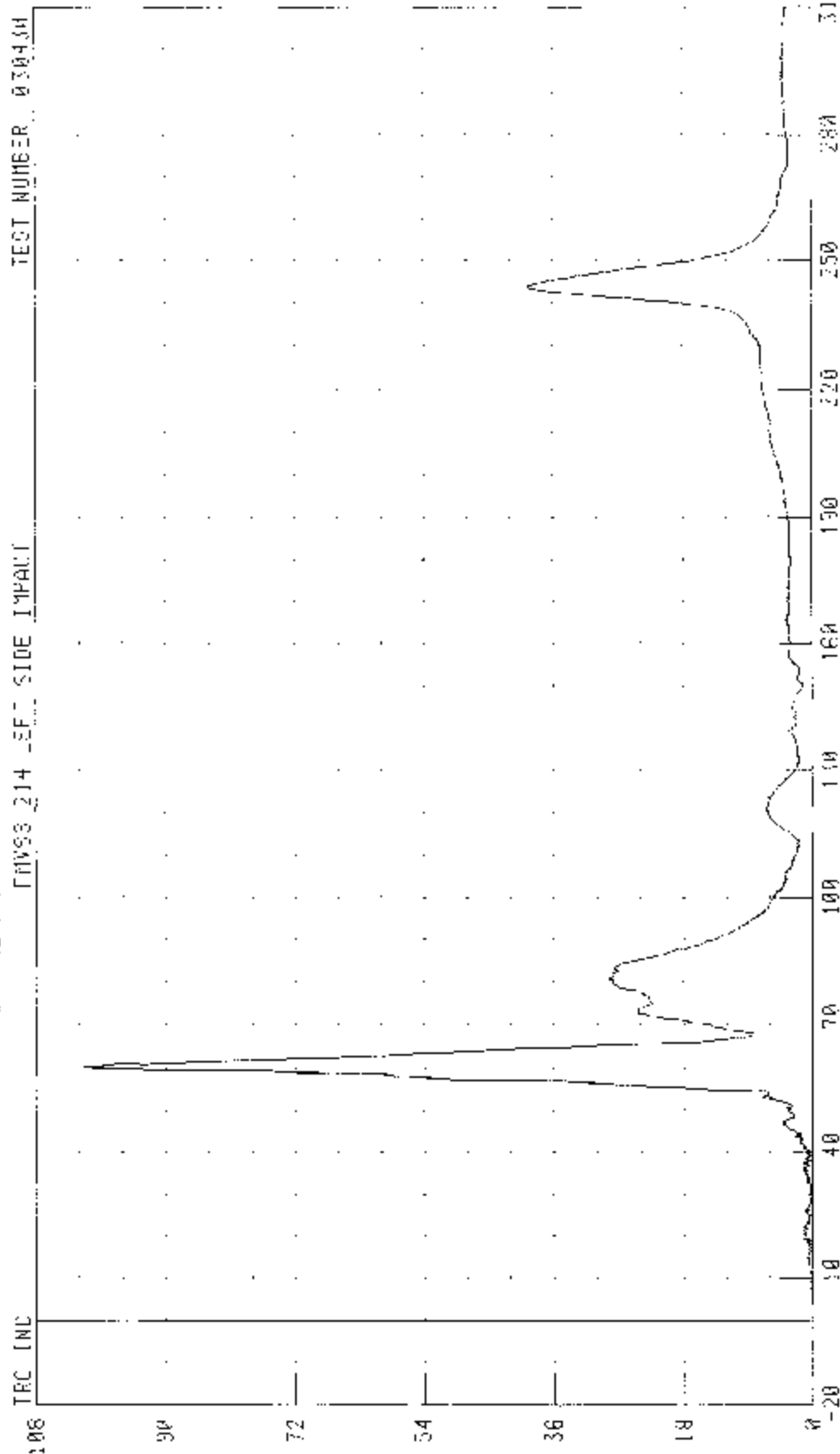
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER HEAD RESULTANT ACCELERATION

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

TRC INC



TIME (MS)

PEAK DATA 101.14 G @ 60.24 MS, 0.02 G @ -20.00 MS

CHANNEL HEADG4 FILTER 1K HZ CLASS 1000

ACCELERATION (G)

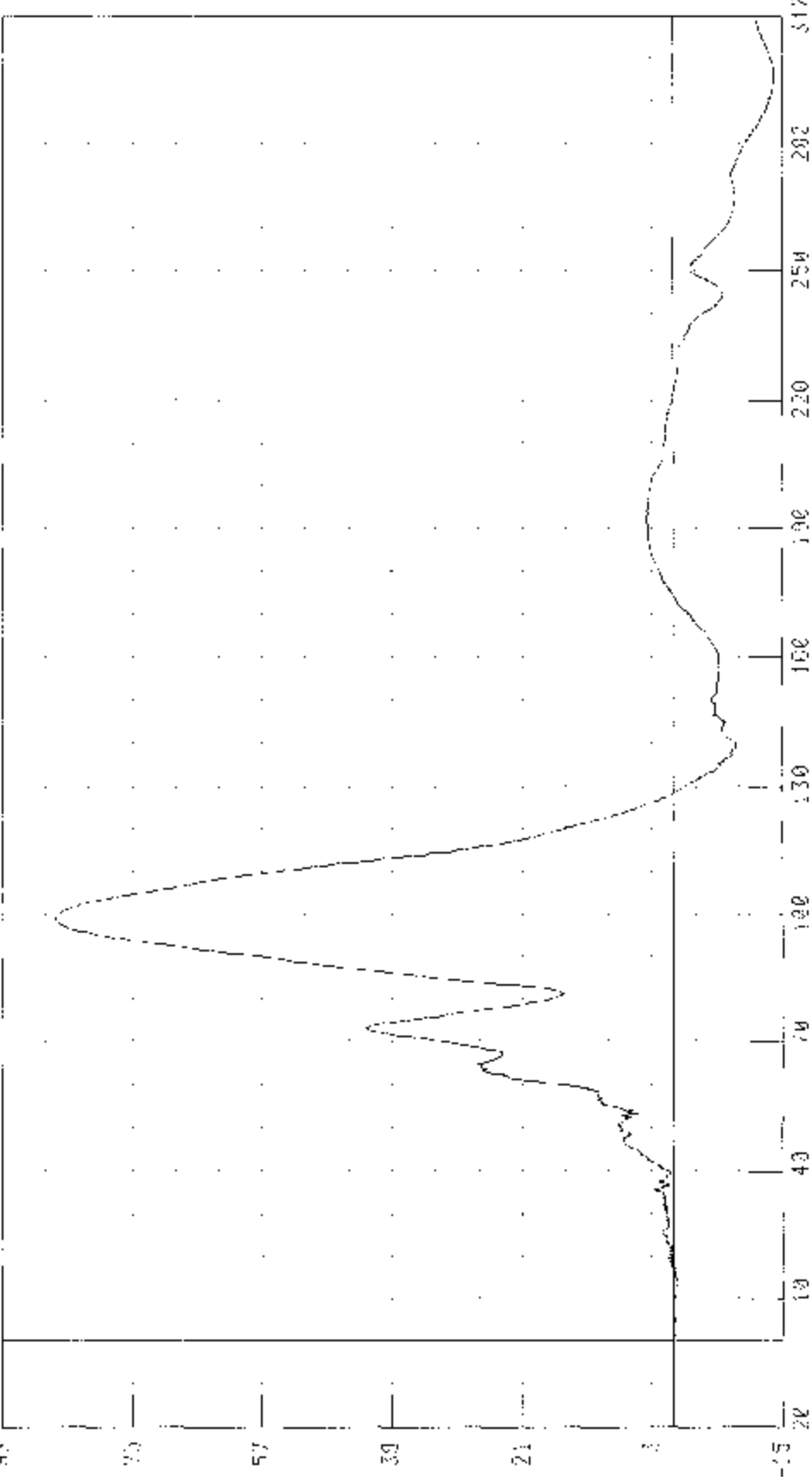
50728 KPH 941 DEGREE 51.4 IMPACT MOVING HORIZONTAL DIRECTION: 10, 0 LEFT SIDE OF 2003 BUN 1231

LEFT REAR PASSENGER W-CR X AXIS G-LAR FORCE

TEST NUMBER 030430

PHASE 001 LEFT SIDE IMPACT

TRC INC



TIME (MS)

WINKER - NEARF4 FILTER - CH 0 050 0000

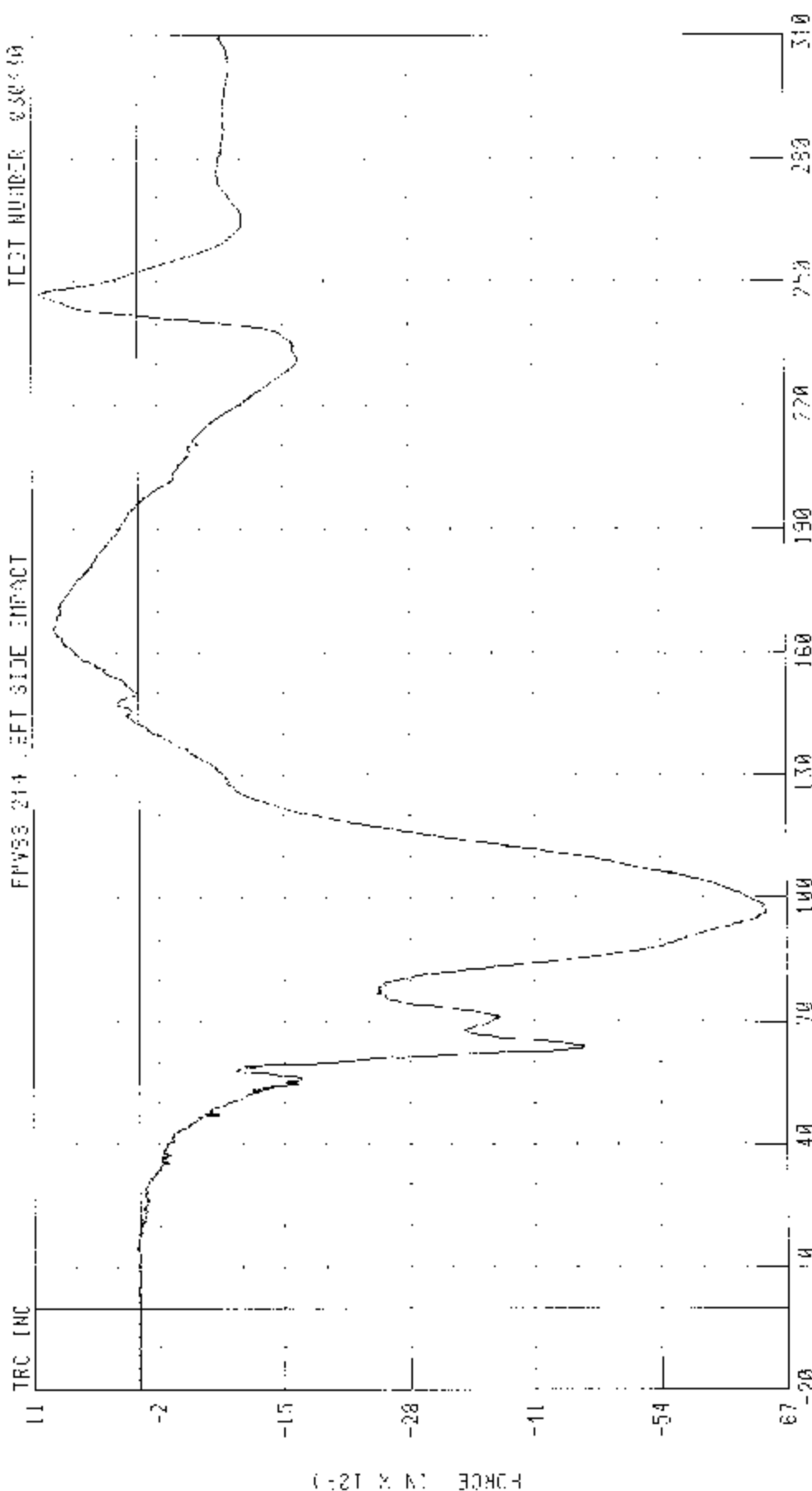
FFPC (074) 357 31 H 0 40 52 H 140 48 1 0 295 H 13

55/28 224 90 DEGREE SIDE IMPACT (MOVING IMPRIMABLE BARRIER) INTO LRA SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER NECK Y-AXIS SHEAR FORCE

TEST NUMBER 050400

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

CANNELL HEKYP4 FILTER 2H CLASS 1200

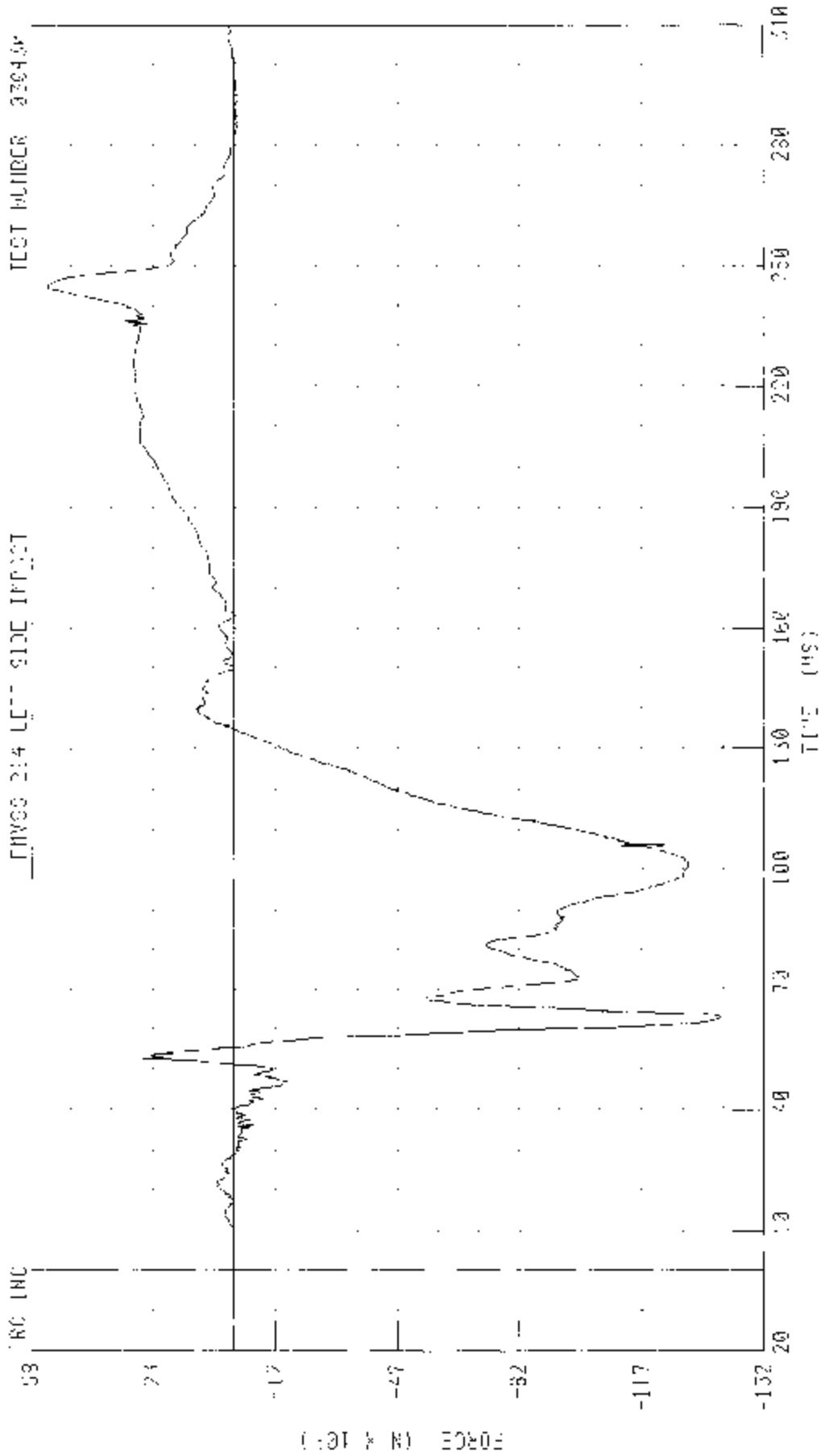
PEAK UNITS 103.53 N @ 246.88 MS, 640.00 N @ 92.88 MS

55-78 KPH 20 DEGREE SLL- CRASH 2007 MW DEFURABLE ERRORS: NIO LEFT SIDE L- 2003 RMV 2250

LEFT R-OR PASSENGER NIO 67-0-15 03101 -0014

TRUSS 214 LEFT SIDE IMPACT

TEST NUMBER 330404



CHANNEL: HFK7F4 FILTER: CH CLASS 1320

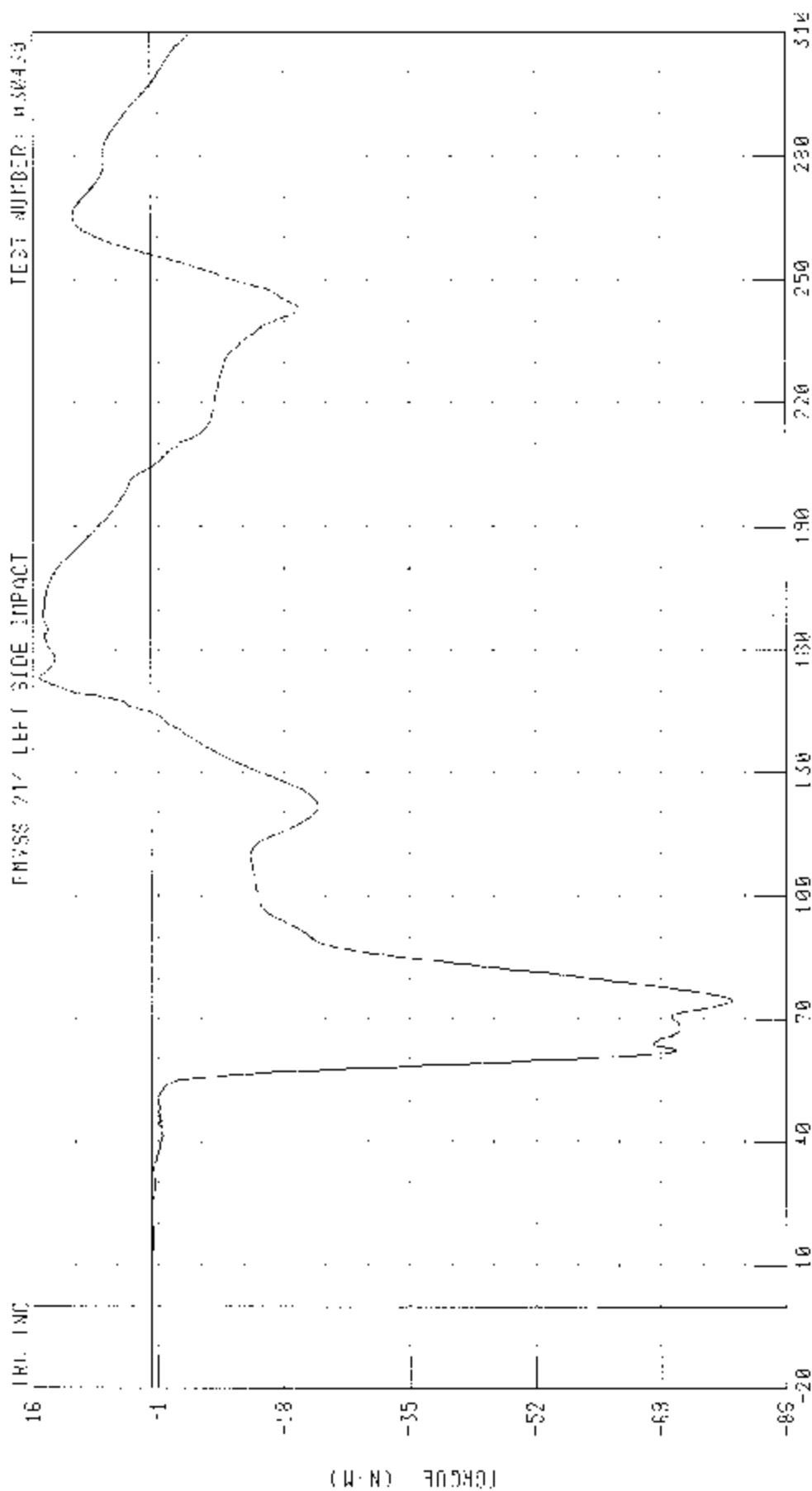
PEAK DATA: 514 51 N 2 245 0-15, 1400 24 N 6 2 35 15

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 7805 HWY 325

LEFT REAR PASSENGER NECK 10 TENT ABOUT X AXIS

FMVSS 217 LEFT SIDE IMPACT

TEST NUMBER: H30430



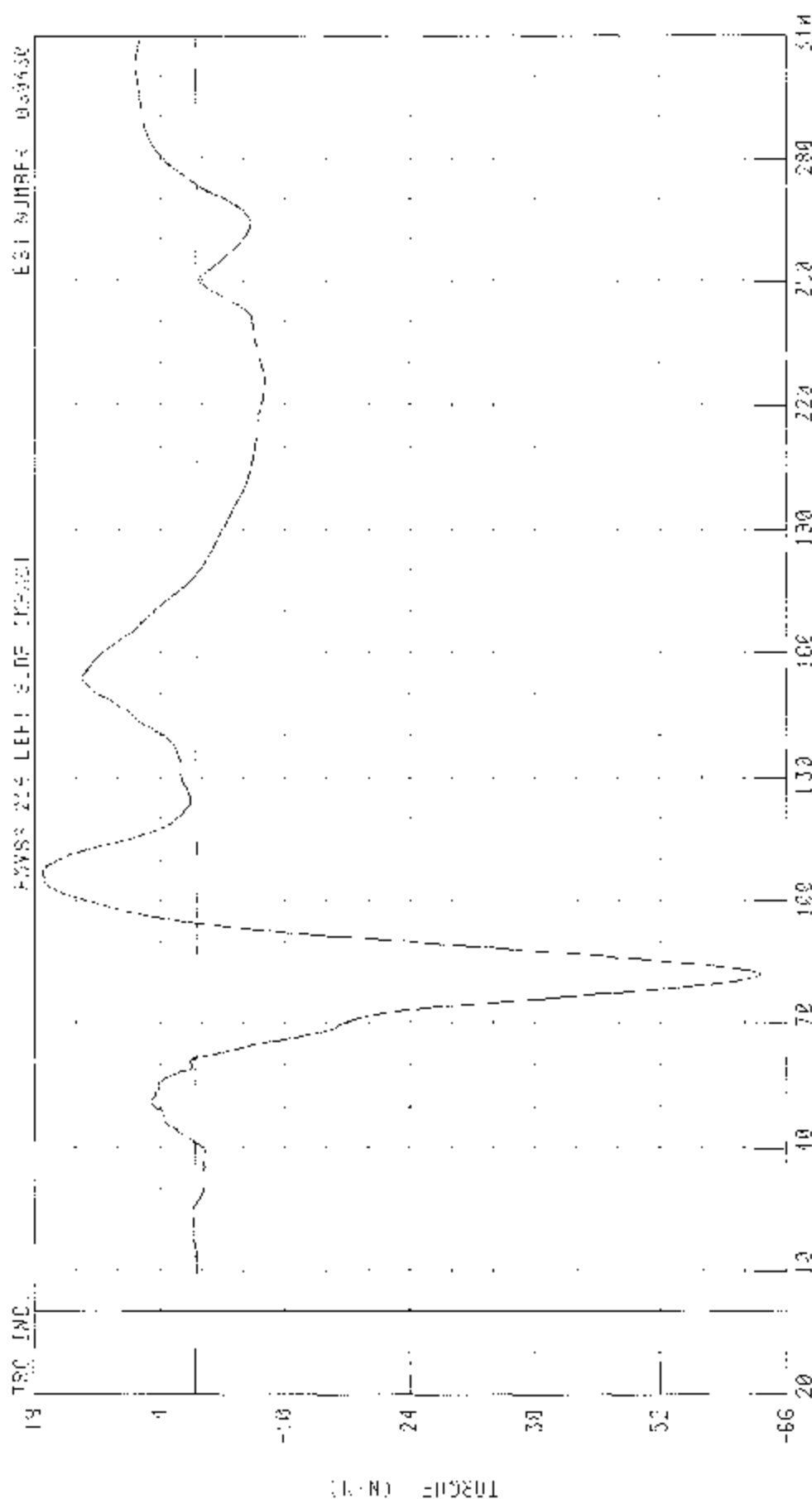
TIME (MS)

CHANNEL NEKX14 FILTER: 14 CLASS 600

PEAK DATA 15 15 N M 153 52 MS; -78 61 N M 274 94 MS

55/28 KPH 92 DEGREE SIDE IMPACT MOVING DETECTABLE HAZARD: INFL P-1 SIDE IN 2202 AMW 4750

LEFT REAR PASSENGER NECK MOVEMENT ABOUT Y AXIS

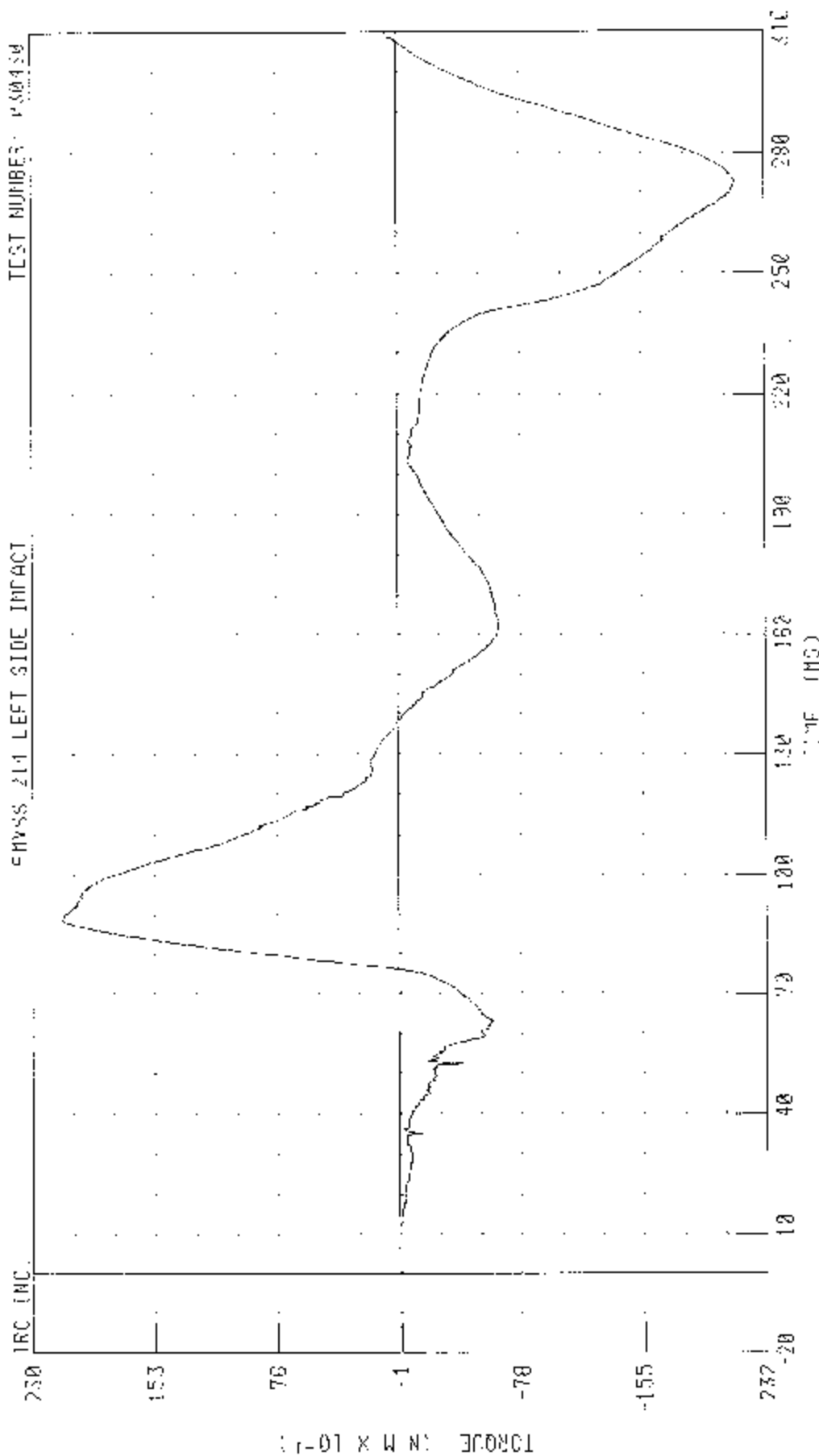


NECKY4 CUTTER: CH CLASS 600

PEAK DA 9 12 13 N W 100.40 MS 03 04 N W 01 92 13

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 DFW 9251

LEFT REAR PASSENGER NECK MOMENT ABOUT Z AXIS

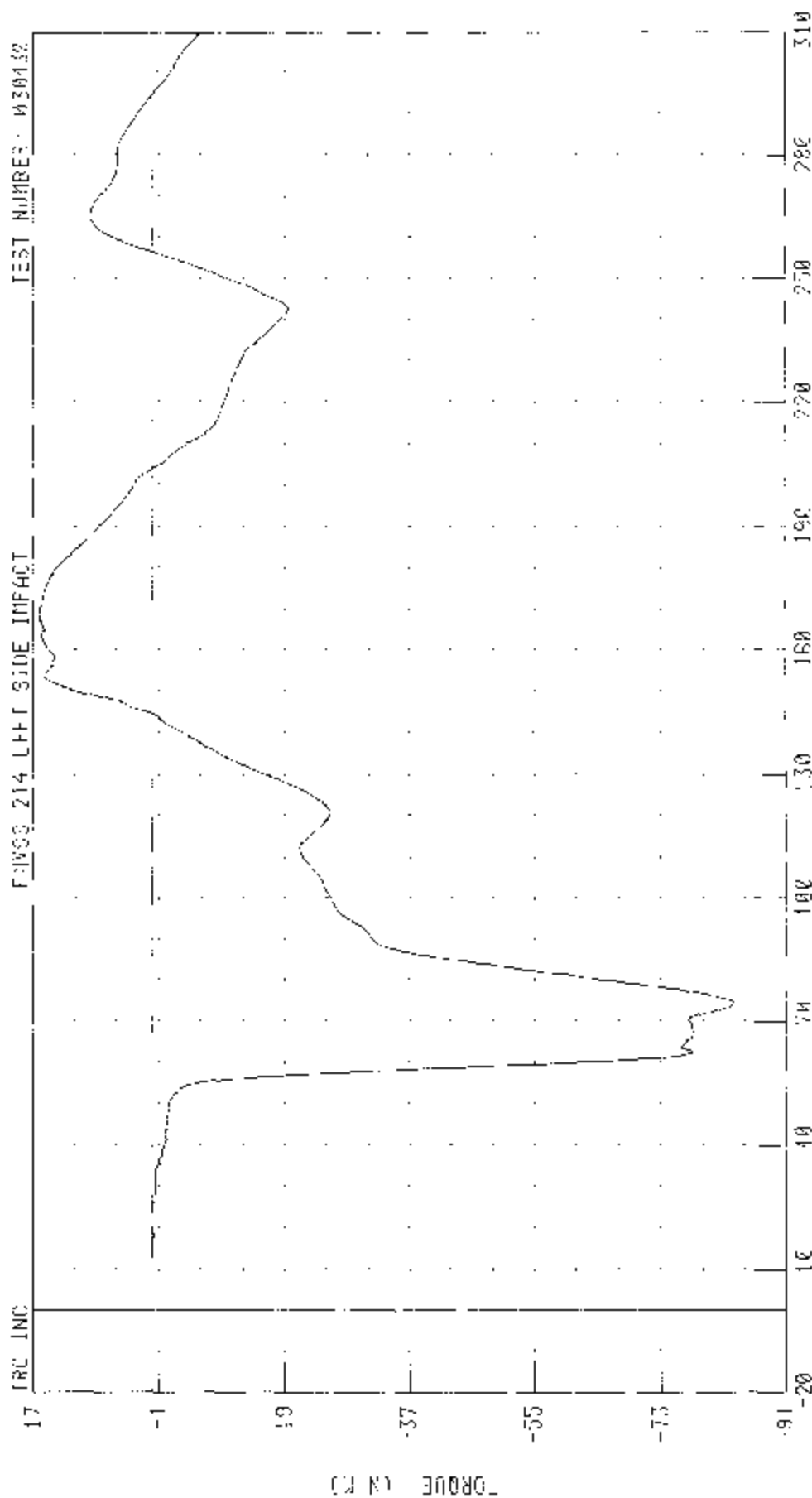


CHANNEL: VF4714 FILTER: CH1 CLASS: 800

PEAK DATA: 21.16 N H @ 33.92 MS: -21.33 N H @ 272.96 MS

05/28 KP-30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2203 BMW 325i

LEFT REAR PASSENGER NECK OCCUPANT CONDITION MONITOR PROXY X AXIS

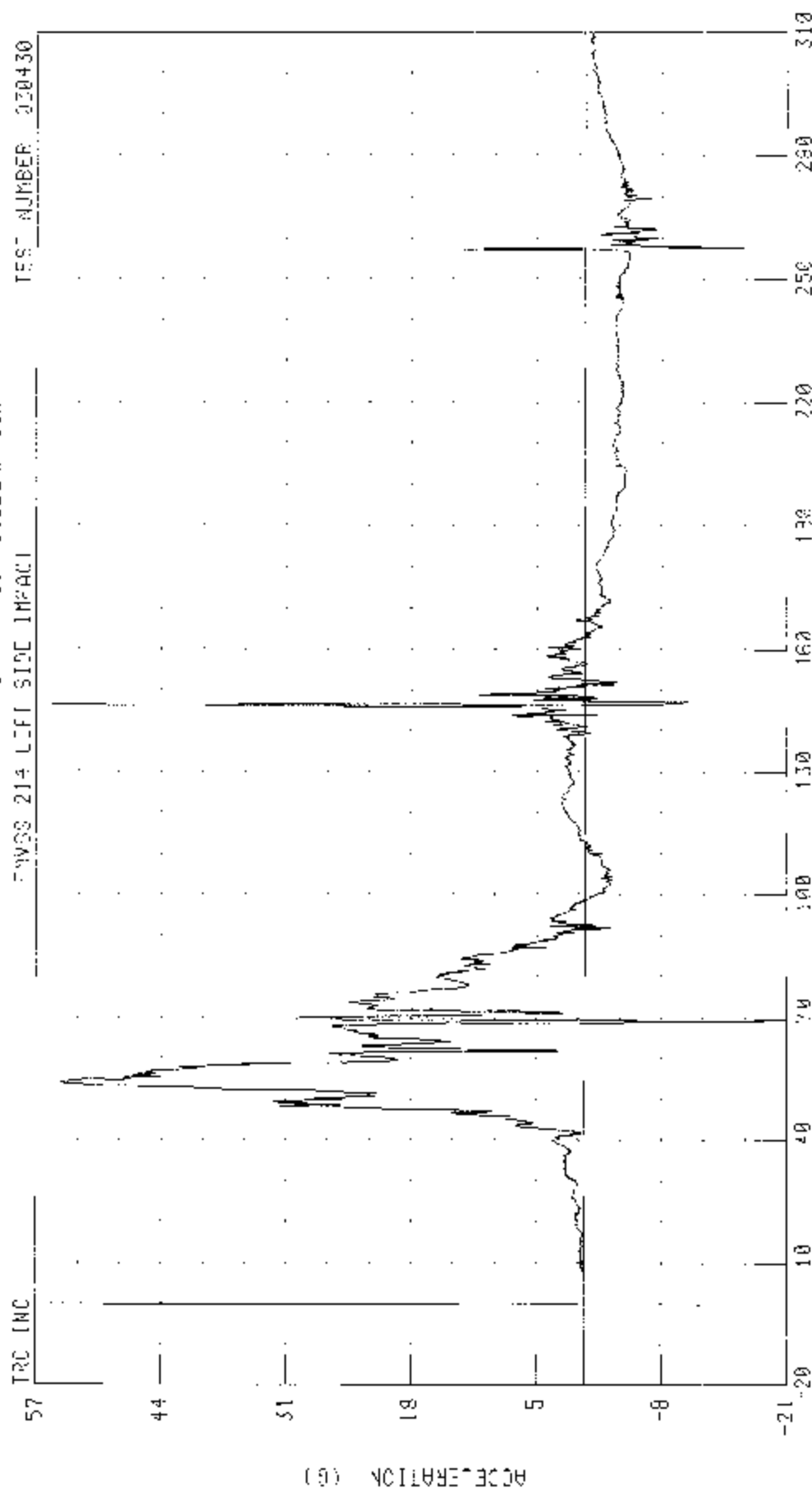


CHANNEL: NK0014 FILTER: 0.1 HZ

PEAK DATA: 15.0 N·m @ 10.0 ms; -85.0 N·m @ 70.0 ms

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING OFFSHORE BARRIER) INTO LEFT SIDE OF 2003 HWY 325)

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION



TIME (MS)

CHANNEL - LUB-004 FILTER - CH CLASS 1000

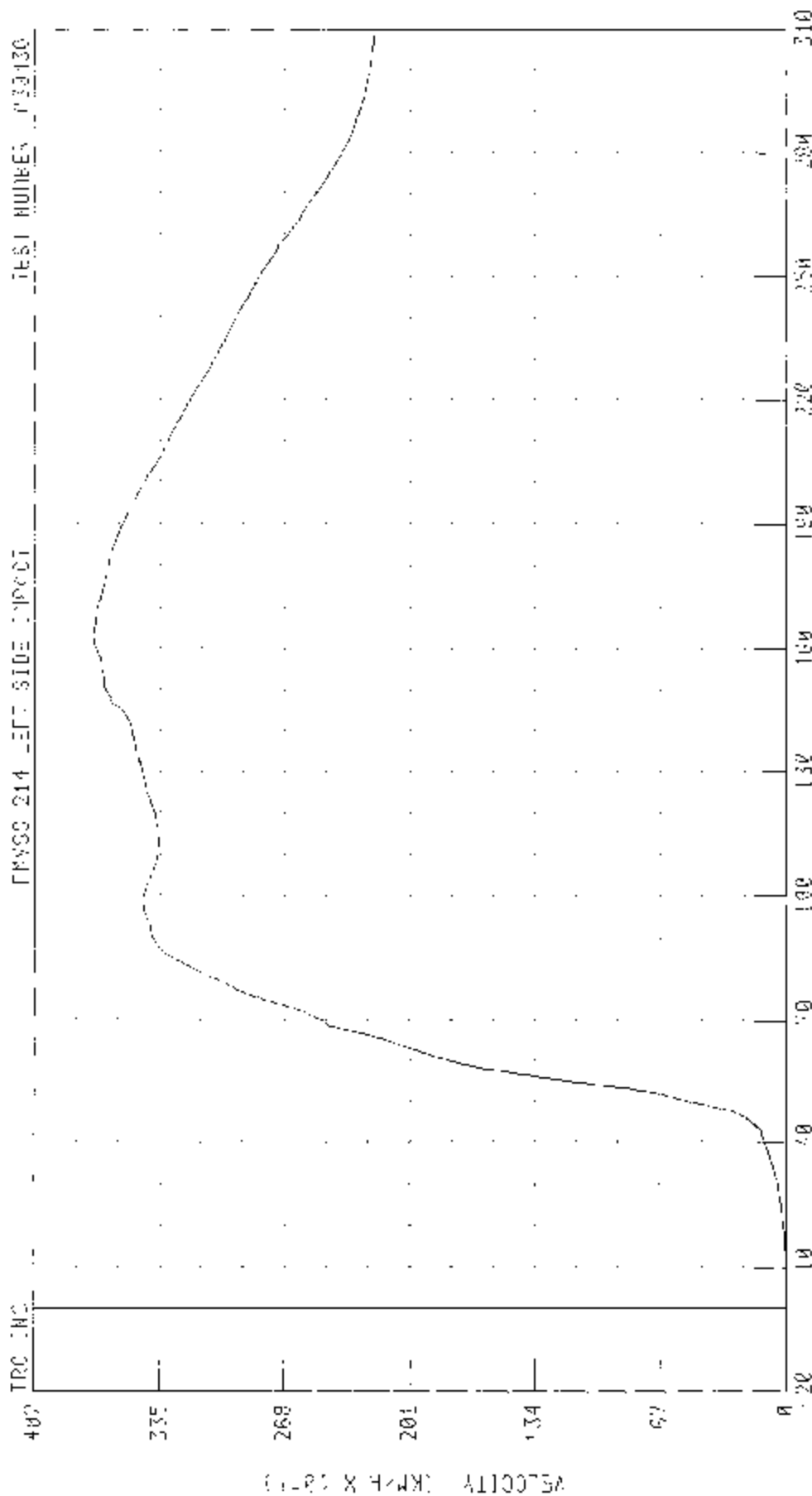
PEAK DATA 55.40 C 0.145 58.1% -15.17 C 0.469 52.1%

55.20 MPH 90 DEGREE SIDE IMPACT DURING DEFORMABLE BARRIER: INFO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER LOWER RIF Y-AXIS VELOCITY

TEST NUMBER P33130

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

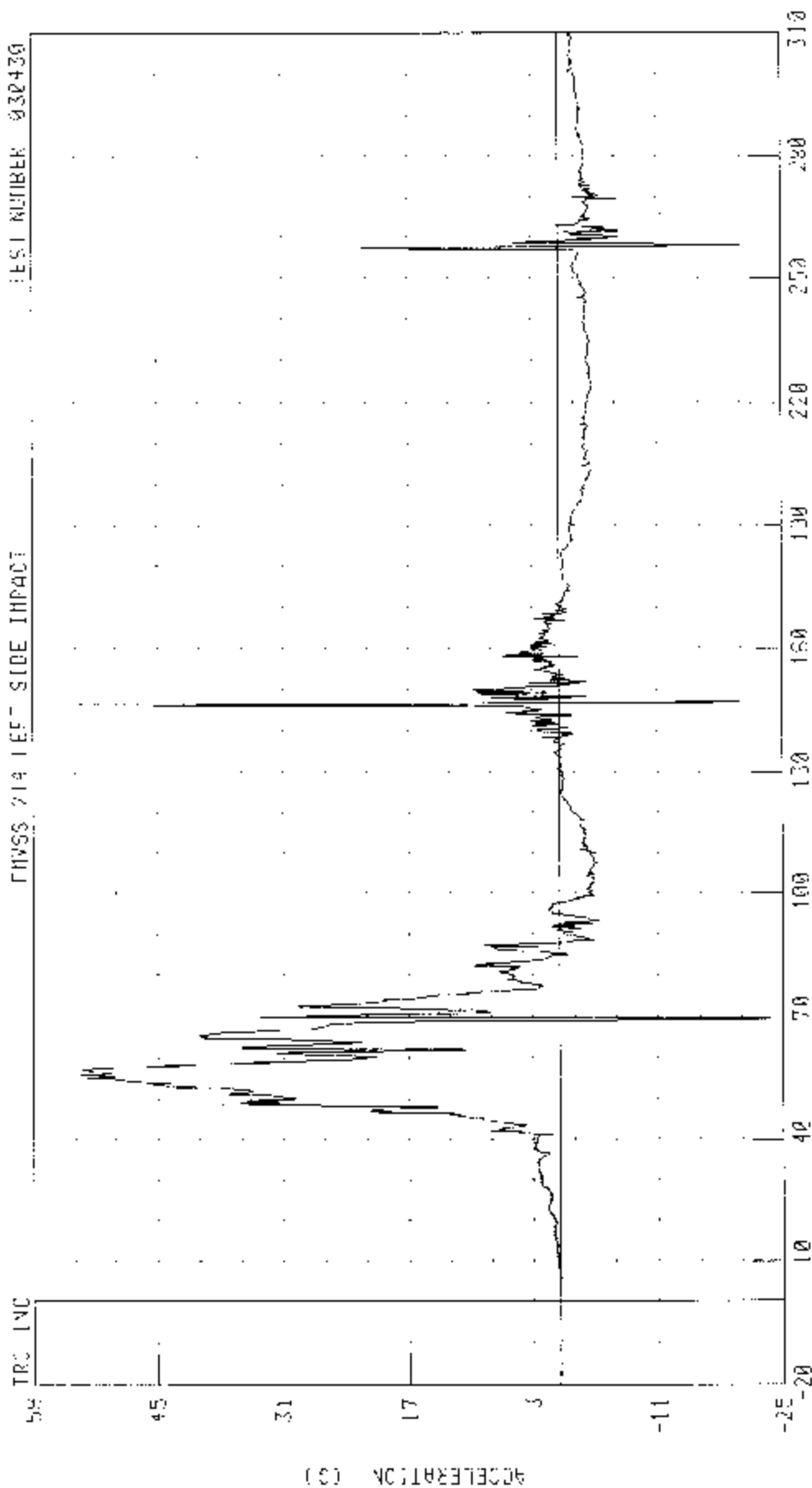
CHANNEL CURVED FILTER CH CLASS 100

PEAK DATA 37.07 KPH @ 133.20 MS; 0.00 KPH @ 3.00 MS

55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325.

LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030430



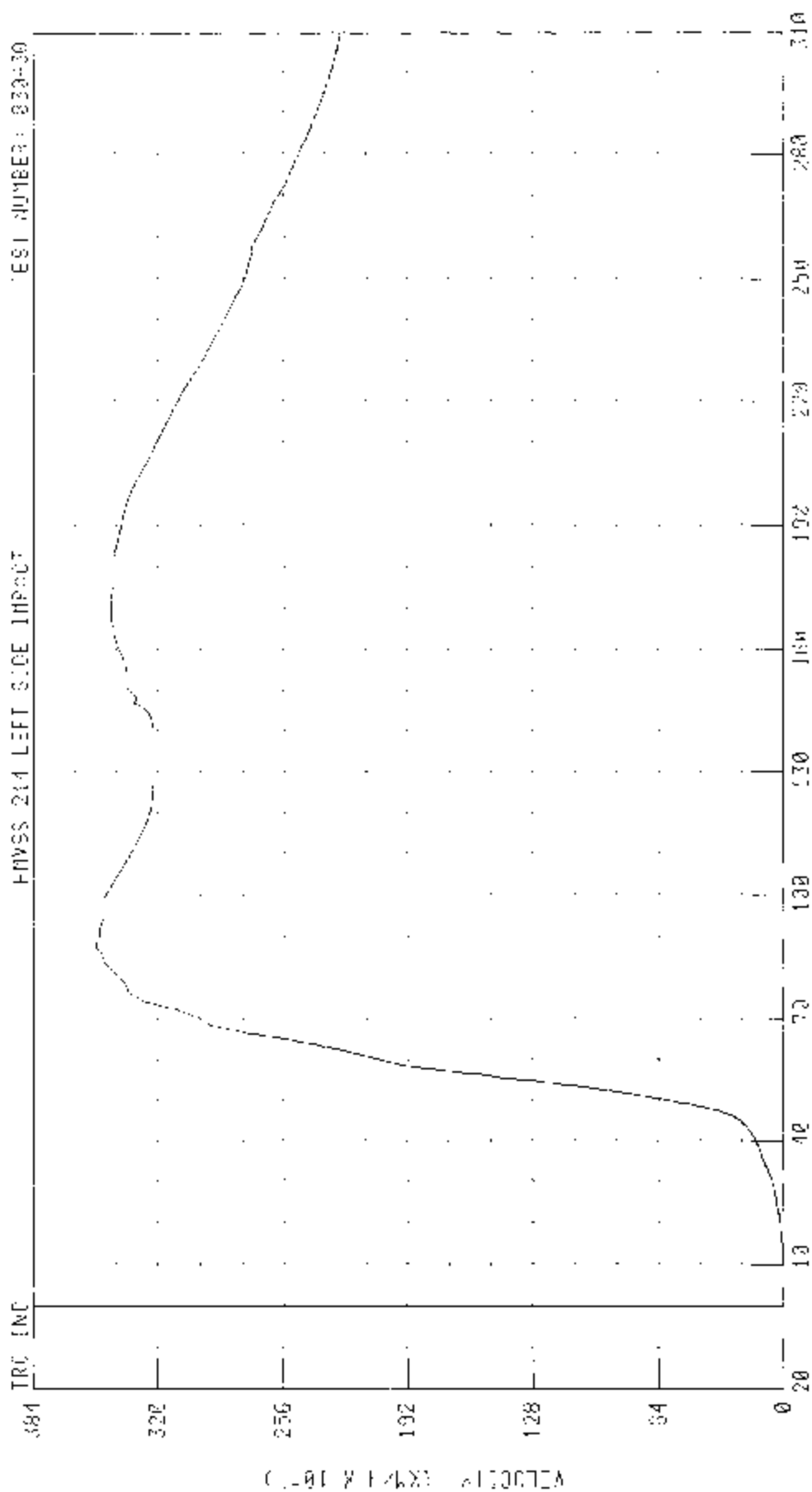
CHANNEL 13704 FILTER CH CLASS 1000

TIME (MS) 0 50 100 150 200 250 300 310

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING OFFROADABLE BARRIER) INITIAL SPEED OF 200.5 MPH 3/30

LEFT REAR PASSENGER POWER RIG Y AXIS VELOCITY

RVSS 214 LEFT SIDE IMPACT TEST NUMBER: 833-30



TIME (MS)

CHANNEL: LRVY4 FILTER: C CLASS: 184

PEAK DATA 35.18 KPH @ 88.08 MS, 0.98 KPH @ 90.00 MS

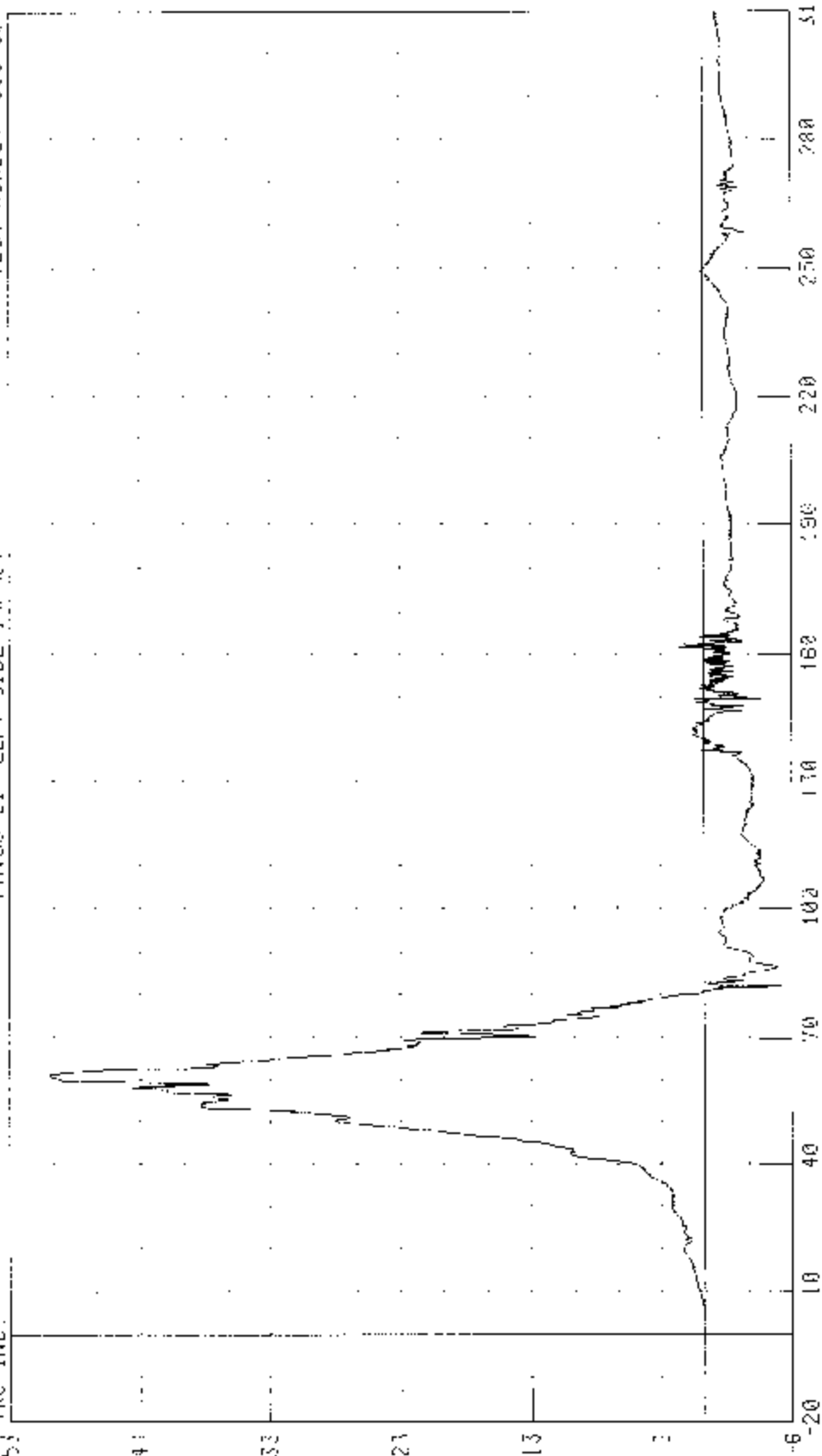
55/28 KSI- 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF TRUCK HW 525J

LEFT REAR PASSENGER LOWER SPINE Z-AXIS ACCELERATION

TEST NUMBER: 030-58

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



ACCELERATION (G)

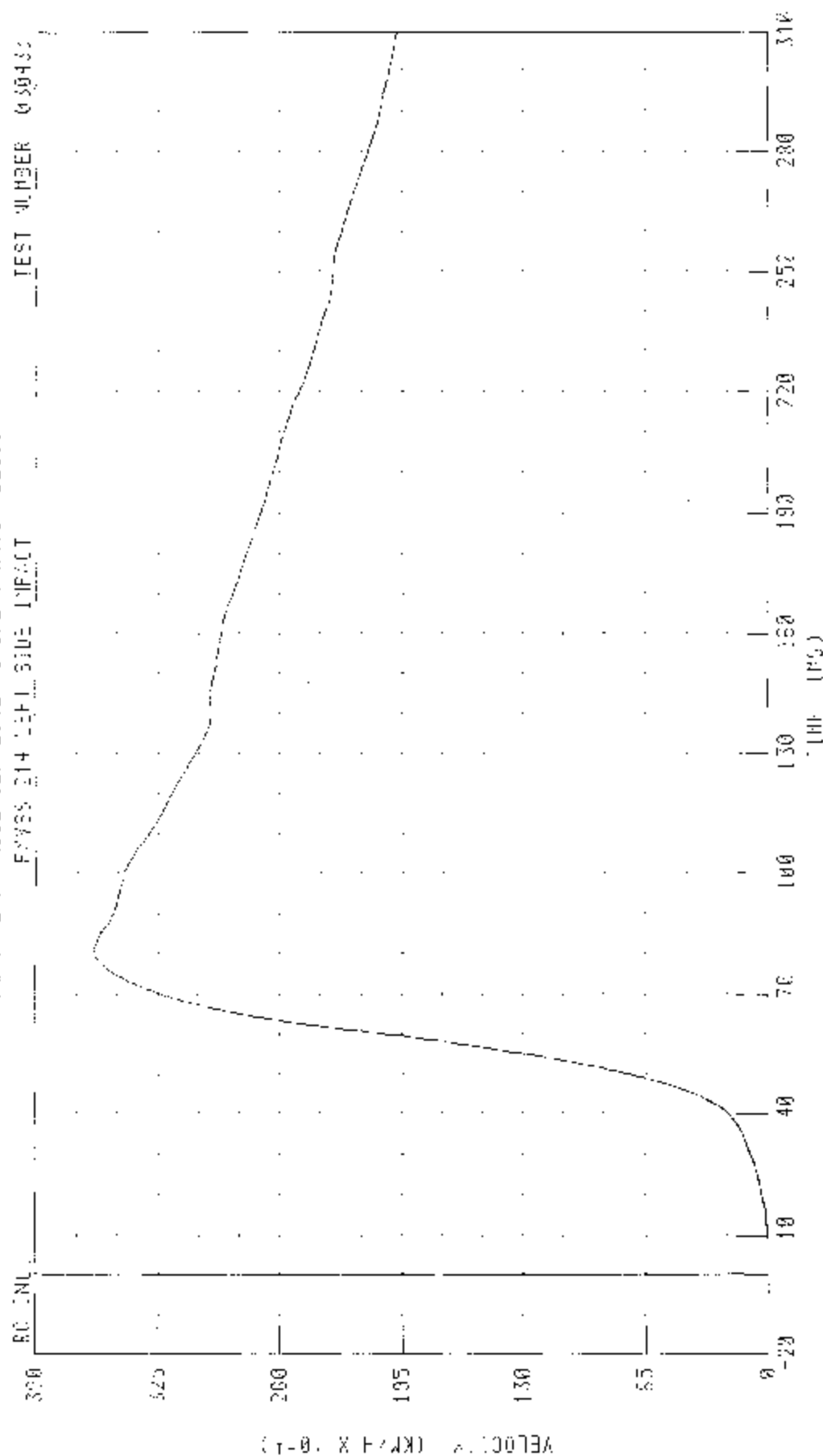
TIME (MS)

CHANNEL: 112004 FILTER: 0-1 CLASS 1000

PEAK DATA 50 35 0.0 51 29 PS. -6 10 0 51 34 PS

55/28 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 BMY 325J

LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY



PEAK DATA 25 95 MPH 6 90 64 75 0 05 00 1 2 6 00 15

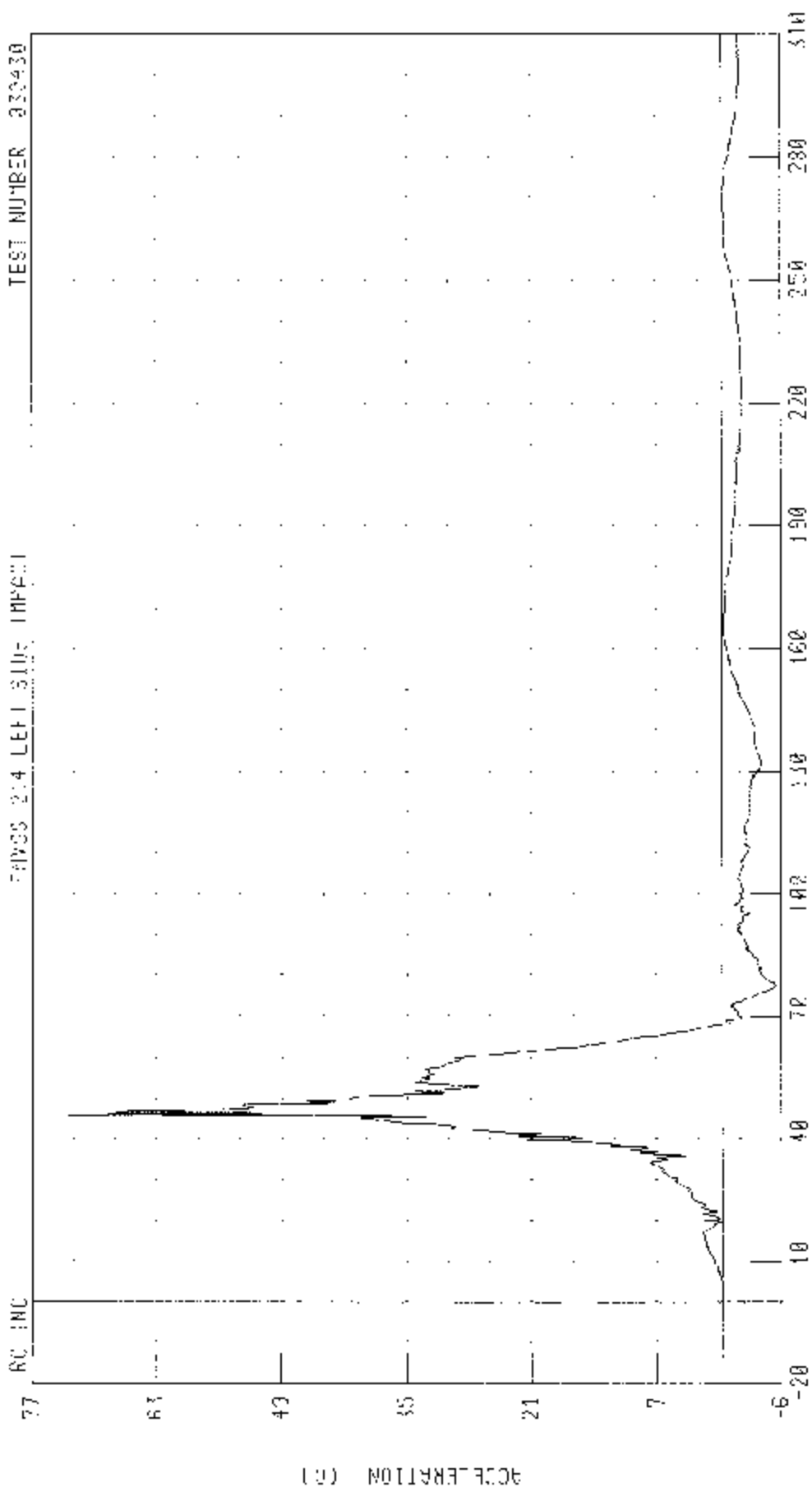
CHANNEL 112V44 FILTER CH CLASS 130

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

THI FOR PASSENGER PEV'S Y-AXIS ACCELERATION

SAVES 214 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

CHANNEL PEV04 FILTER CH. CLASS 1300

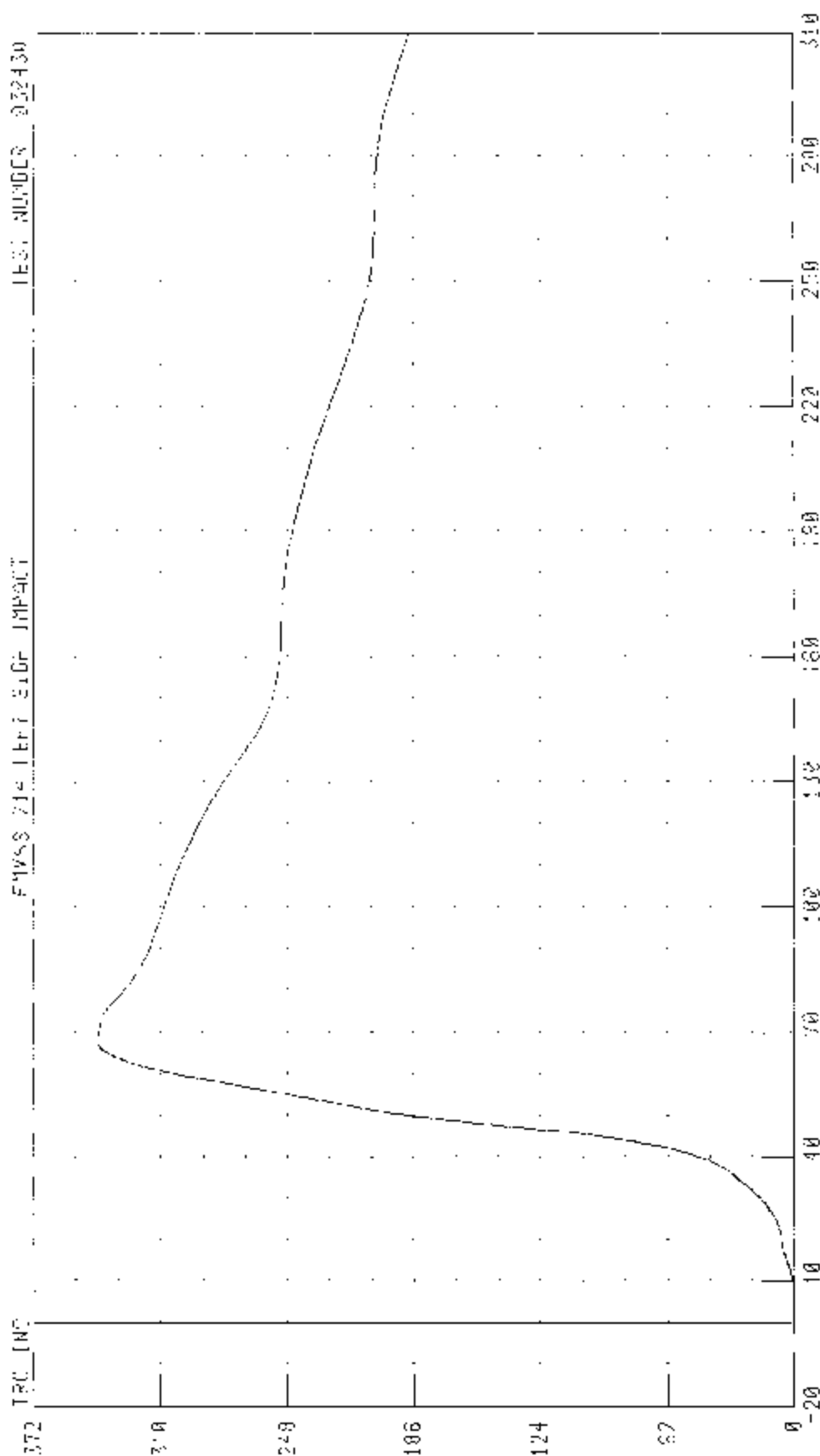
PEAK DATA: 77.38 G @ 45.00 MS, -6.27 G @ 77.68 MS

55/58 MPH 9M BARRIER STOP IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 BMW 325i

LEFT REAR PASSENGER PELVIC Y-AXIS VELOCITY

TEST NUMBER 032430

FWVS 214 LEFT SIDE IMPACT



VELOCITY X 1000 (m/s)

TIME (ms)

CHANNEL FCYV4 FILTER ON, LOSS 18H

PEAK 0410 34.07 KNOT @ 60.16 MS, 6.00 KNOT @ 20.10

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

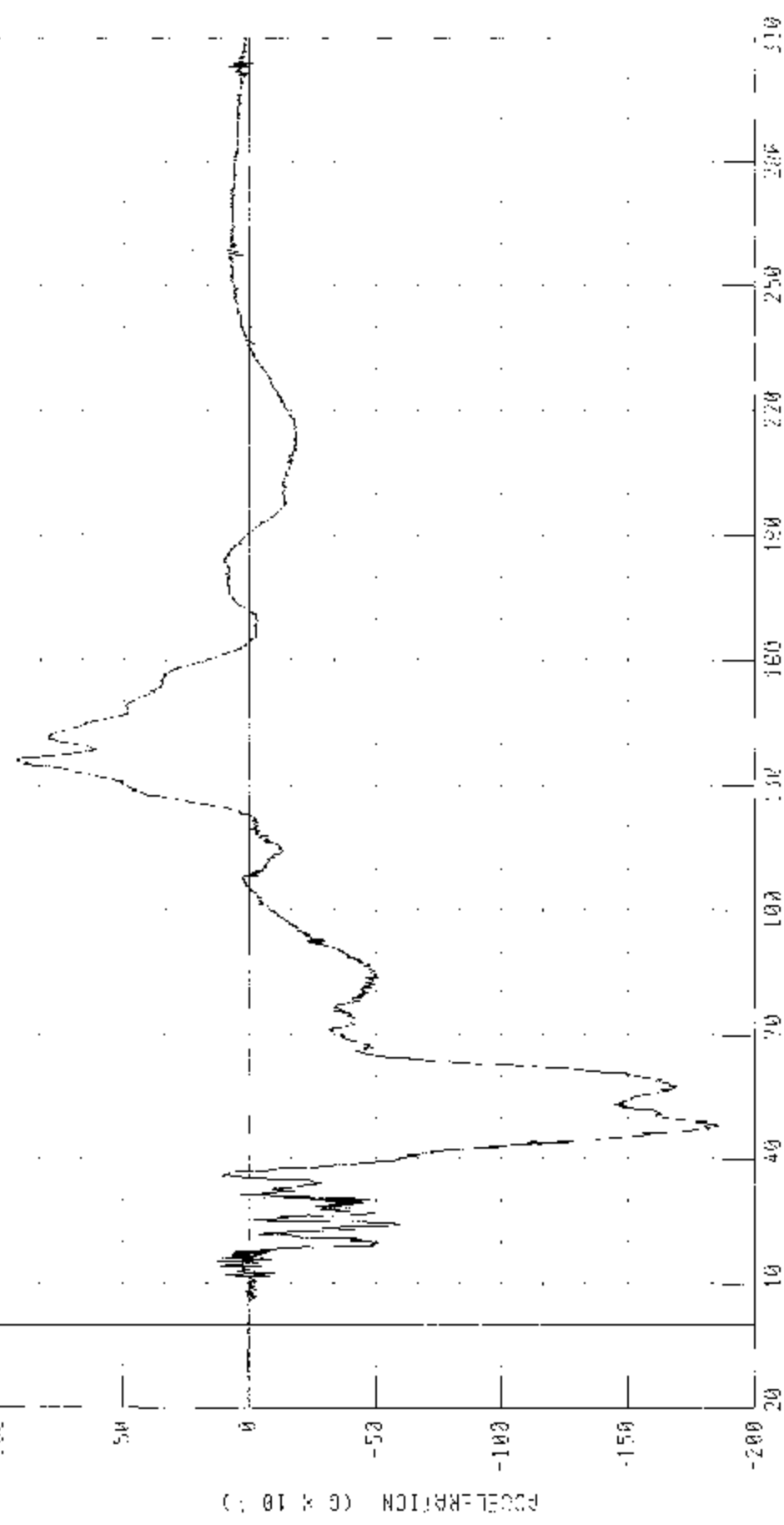
55.78 KPH 2M HIGHER SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 323i

DRIVER HEAD X-AXIS RIGHTWING ACCELERATION

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT

TRC INC



TIME (MS)

CHANNEL DESCRIBE TITLE CH CLASS 1002

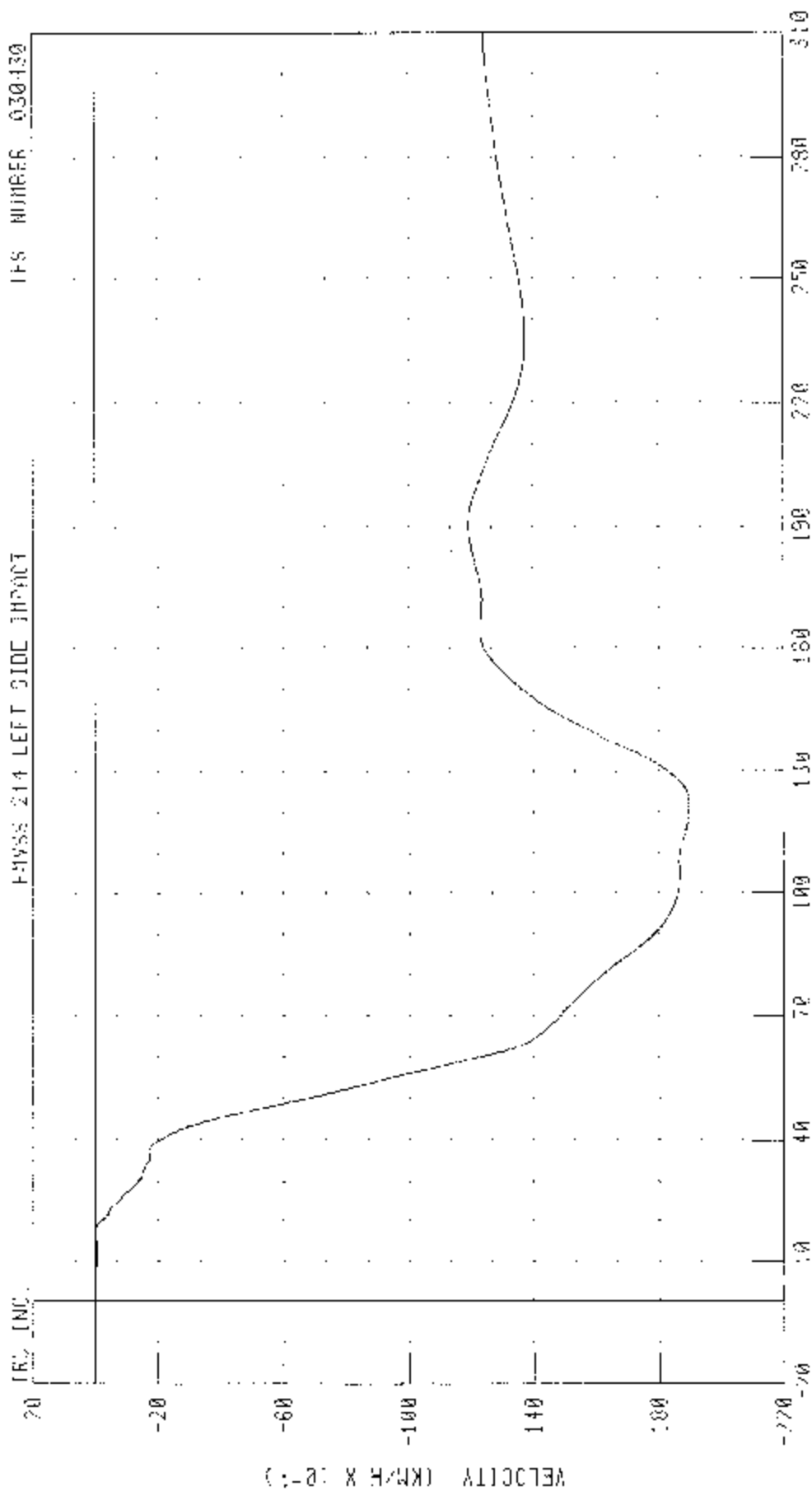
DATA 3 23 0 6 115 42 MS, 18 58 1 8 46 03 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD X AXIS REDUNDANT VELOCITY

PHYS 214 LEFT SIDE IMPACT

IFS NUMBER 030430



TYPE INST

FFR DATA 0 82 814 0 17 94 MS 18 35 48 11 122 88 MS

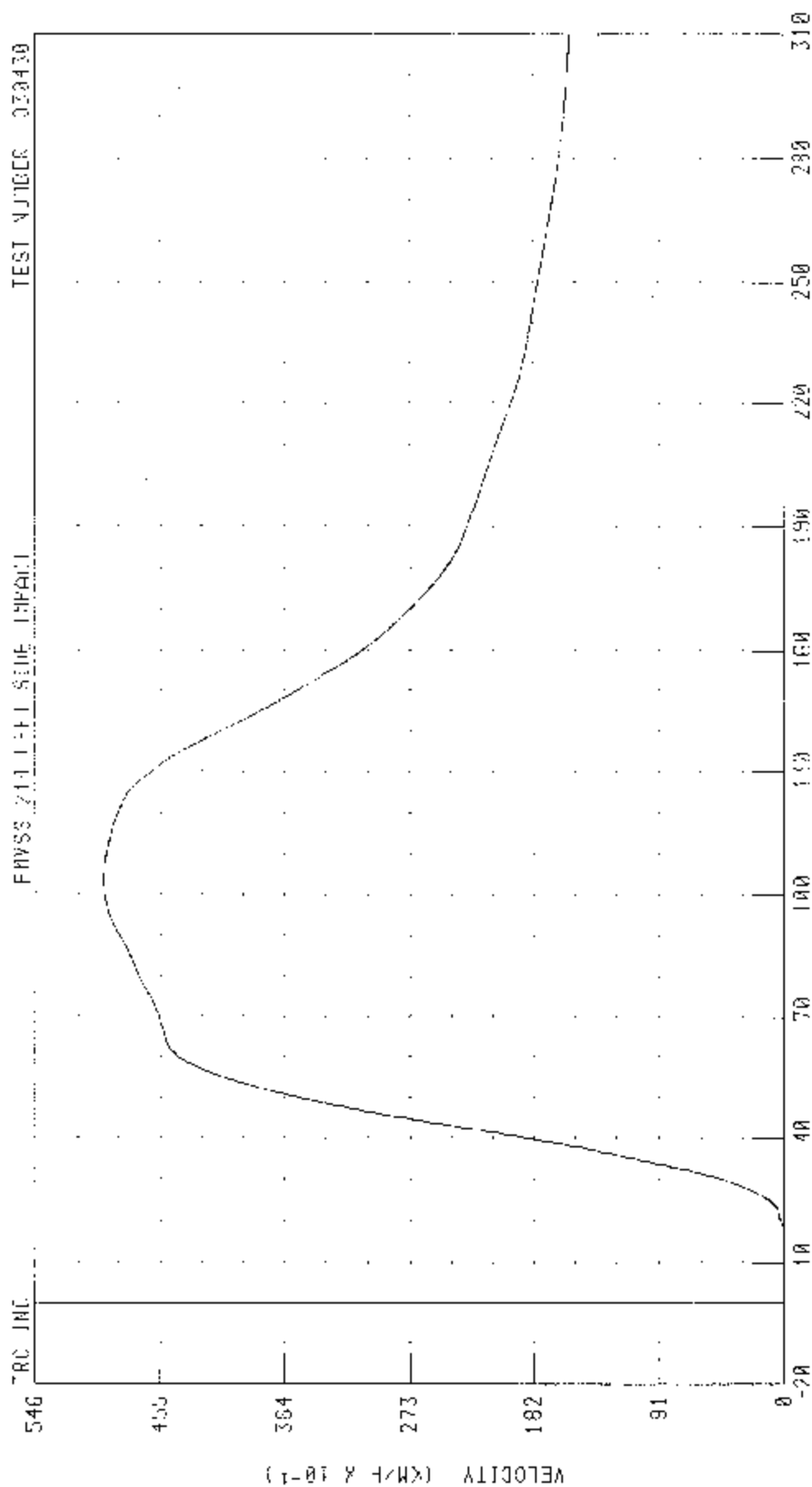
CHANNEL HEADXVI -ILIER OF CLASS 100

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER HEAD Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 030430

FRVSS 211 LEFT SIDE IMPACT



TIME (ms)

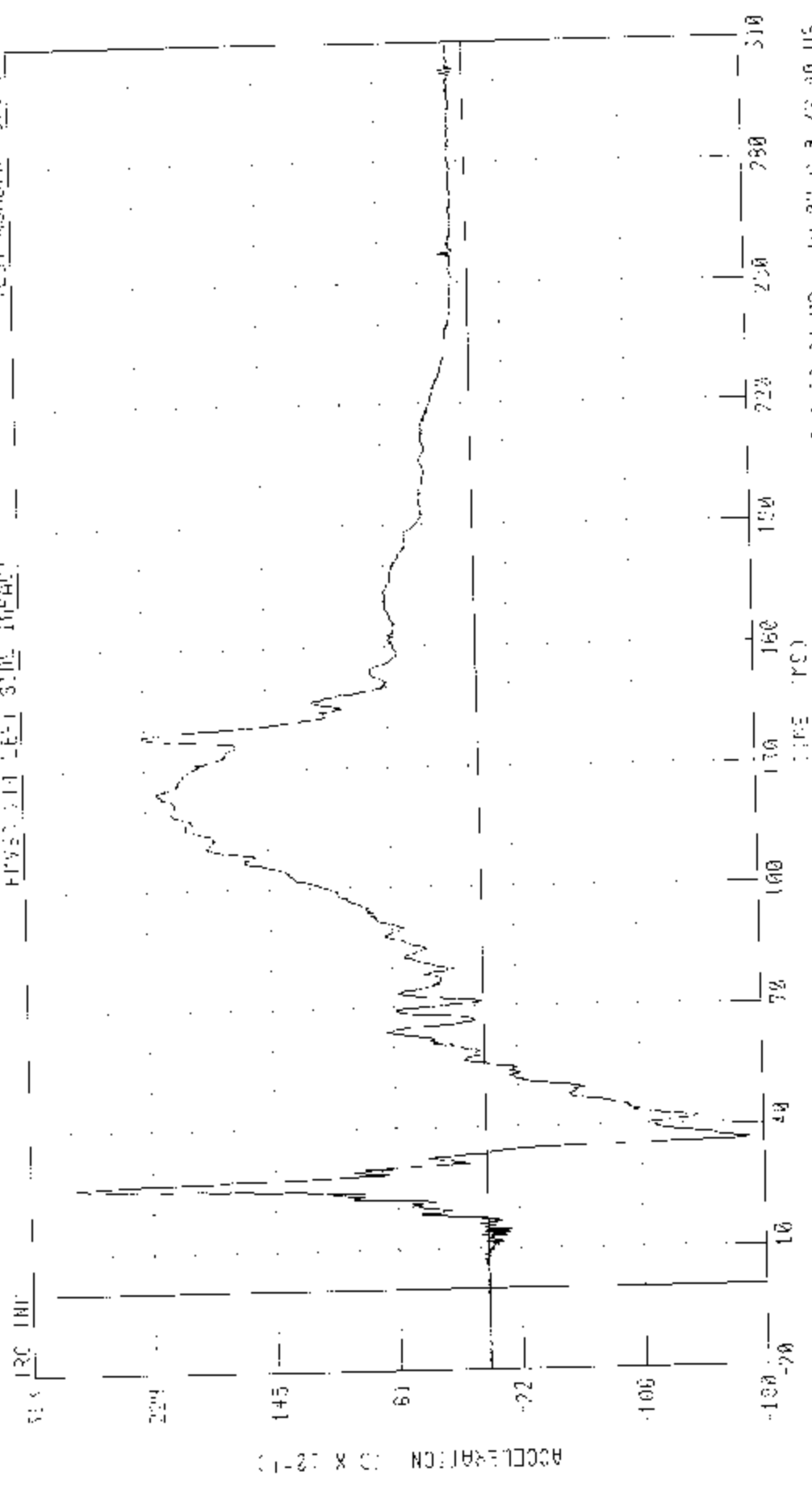
CHANNEL 1EEVVI FILTER CH CLASS 180

PEAK DATA 49.86 km/h @ 103.92 ms, 0.20 km/h @ 3.00 ms

05/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 2023 BMW 325I

TRUCK HEAD 2 HXIS REDUNDANT ACCELERATION

HYDRA 214 LEFT SIDE IMPACT TEST NUMBER 050430



ACCELERATION (G) X 10^-1

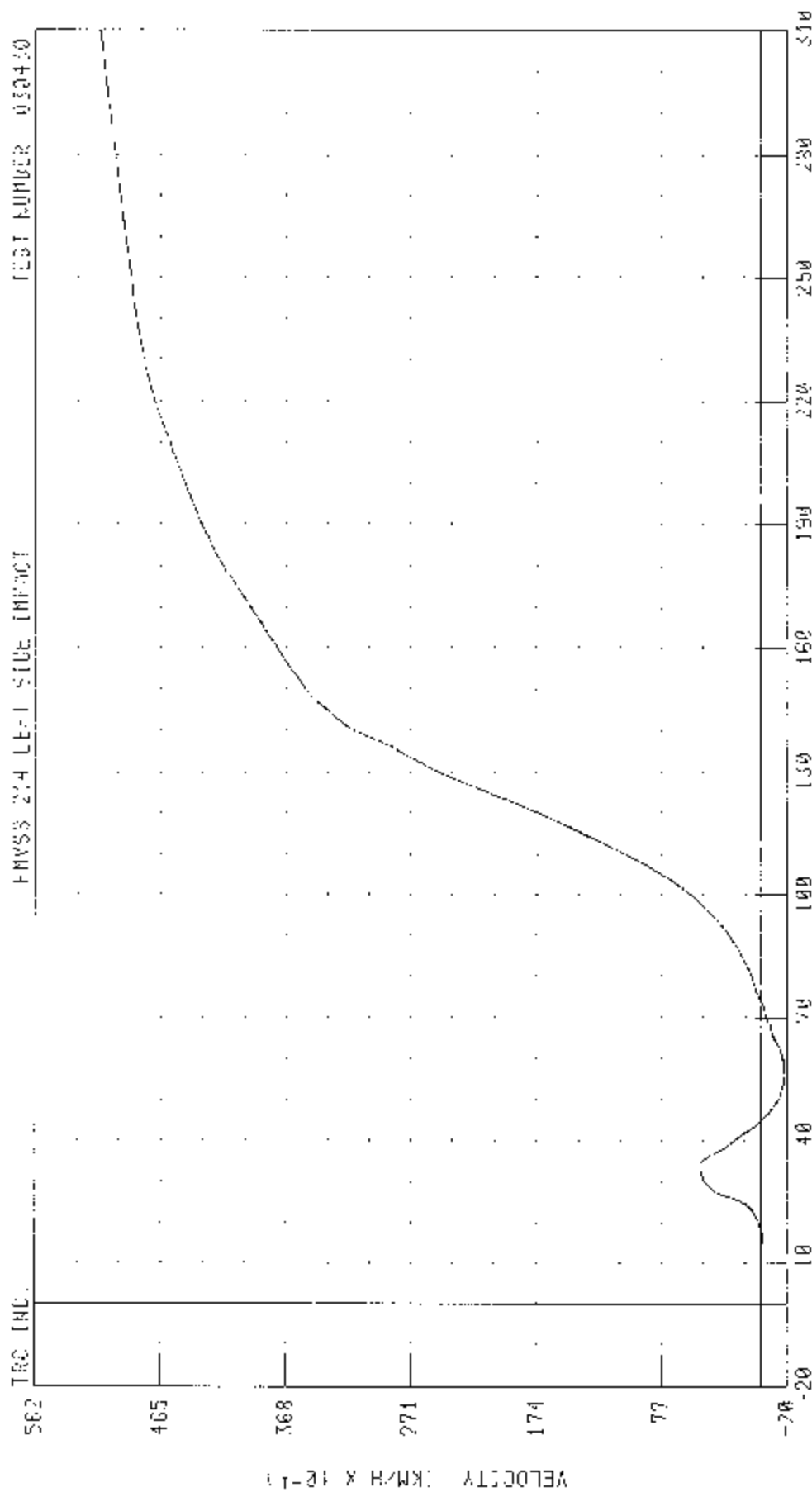
TIME (MS)

PEAK DATA 28 70 0 0 26 24 110 -10 00 0 0 00 115

CHANNEL PEJ7R1 CALTR LM CLASS 1020

55/28 4PH 9R DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER -EAD Z-AXIS REDUNDANT VELOCITY



CHANNEL: HEDZV1 FILTER: CR. CROSS 130

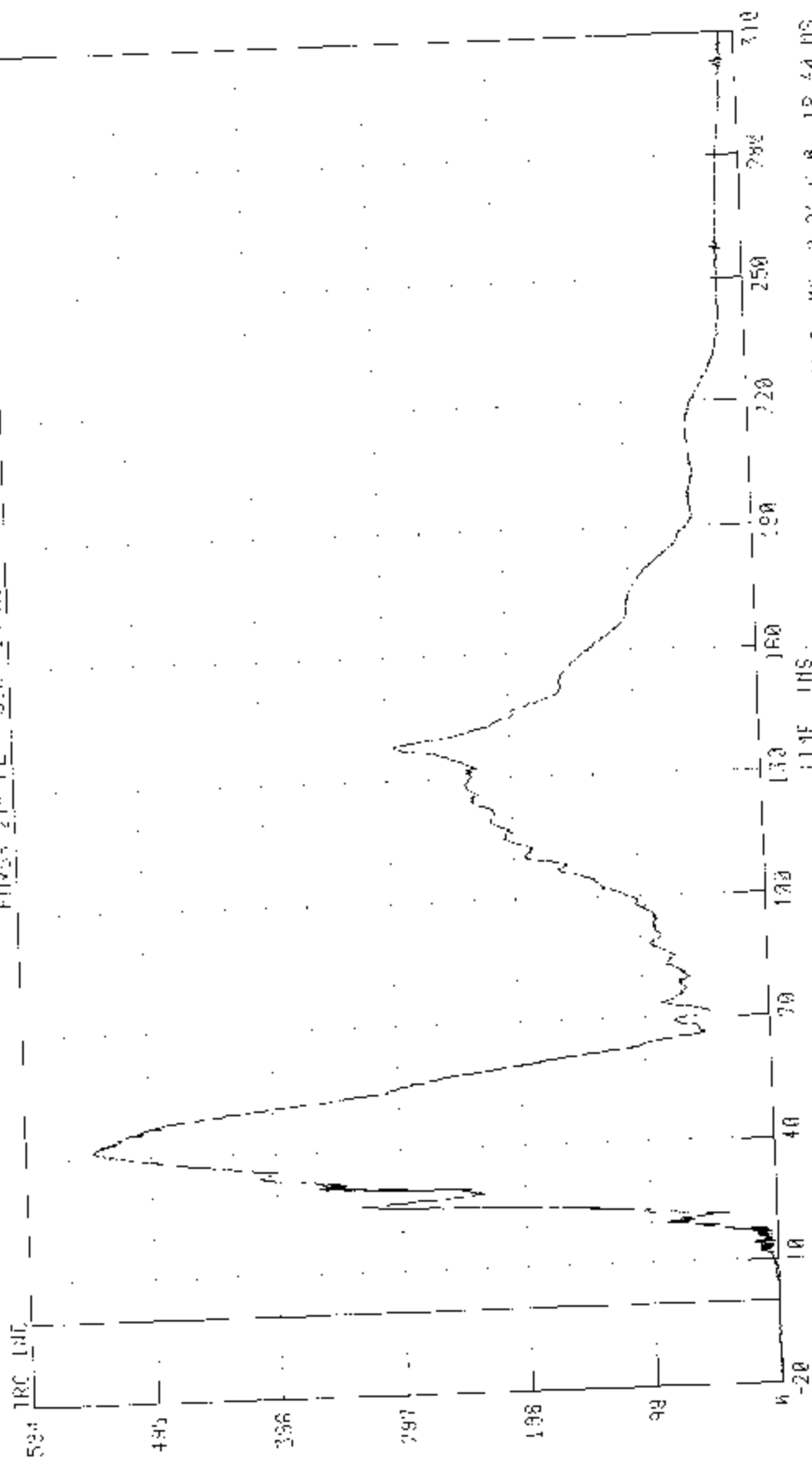
PEAK DATA: 51 11 KPH 4 310 00 MS: -1.32 414 0 56 08 MS

55/78 RPM 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE RAMP) 1000 LBS 2003 RPM 3250

CRUSH HEAD RESULTANT VELOCITY ACCELERATION

TEST NUMBER 030430

IMPACT 214 LBS 5000 IMPACT



CHANNEL: IMPACT 10173.04 CLASS 1000

030430

55.2R KPH 90 DEGREE SIDE IMPACT (MOVING OFFROAD-F RAMP-PR) INTO LEFT SIDE OF 2203 BHW 525:

DRIVER UPPER RIB Y-OXIS REDUCED ACC-FRM JCN

TEST NUMBER 030430

FRYSS 214 LEFT SIDE IMPACT

TRC INC

168

151

94

57

20

-17

-54

(3) NOILR37L000

B-62

TIME (MS)

10 20 42 72 100 130 150 180 220 250 280 310

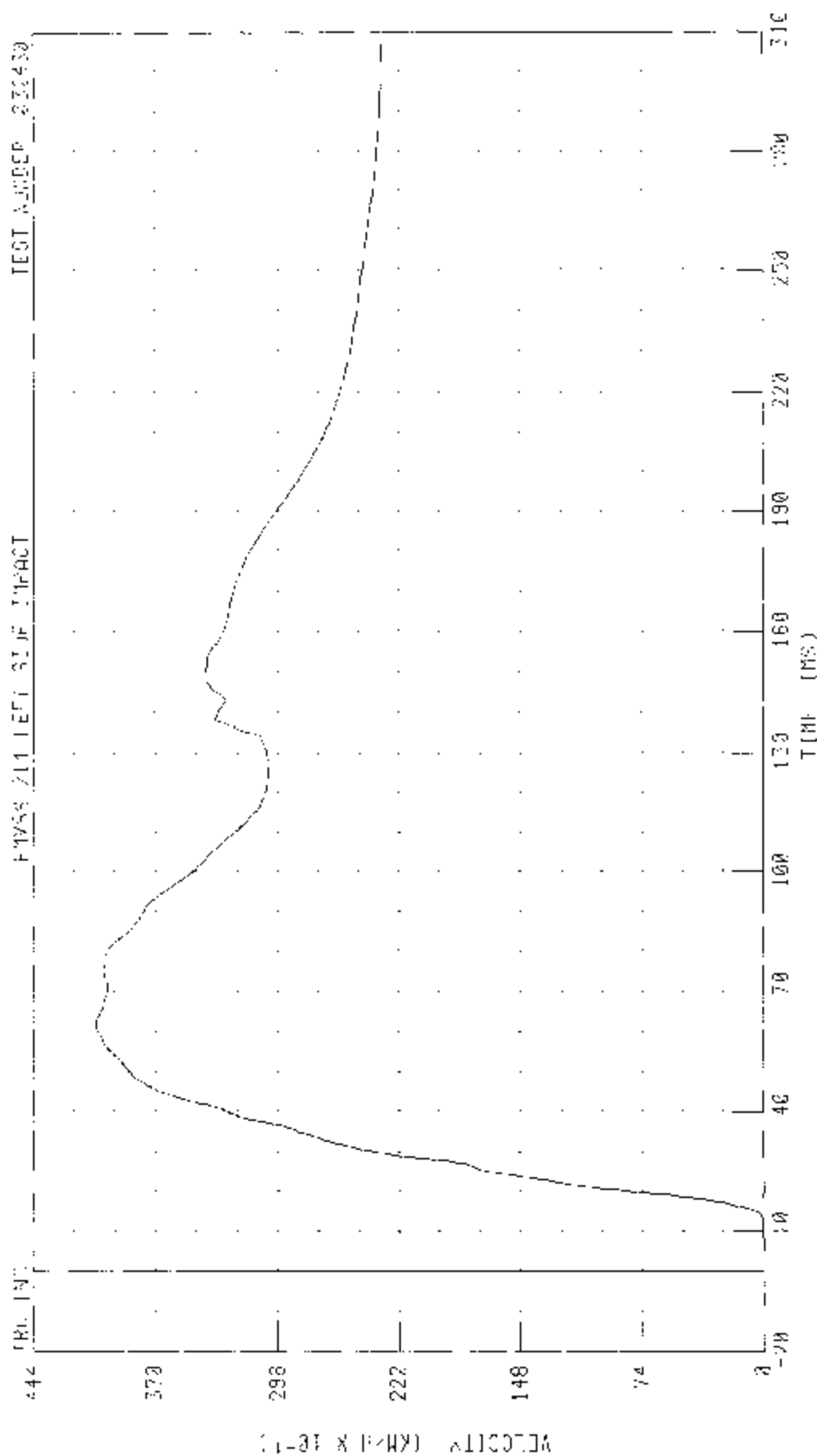
CLAMP: LURYR: FILTER: CI CLASS 1000

PEAK DATE 152 01 0 0 130 36 15, -19 34 0 0 130 34 15

030430

25478 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 BMW 325I

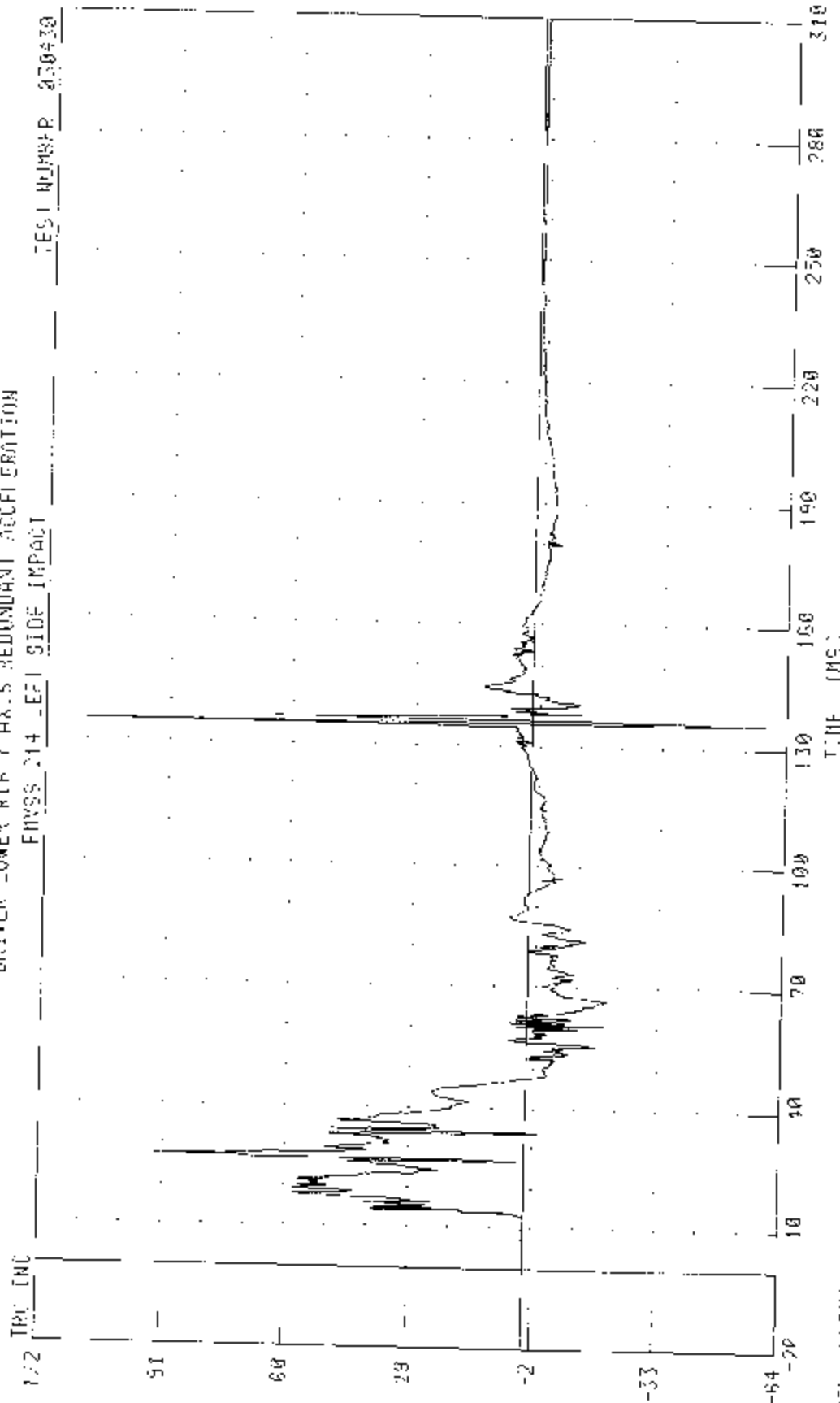
DRIVER'S UPPER RIB X AXIS REDUNDANT VELOCITY



CHANNEL: CURVYI FILTER: 05 CLASS: 180

PEAK: 370.4 48.51 370.4 2.02 10.15, 0.00 370.4 0.2 24.15

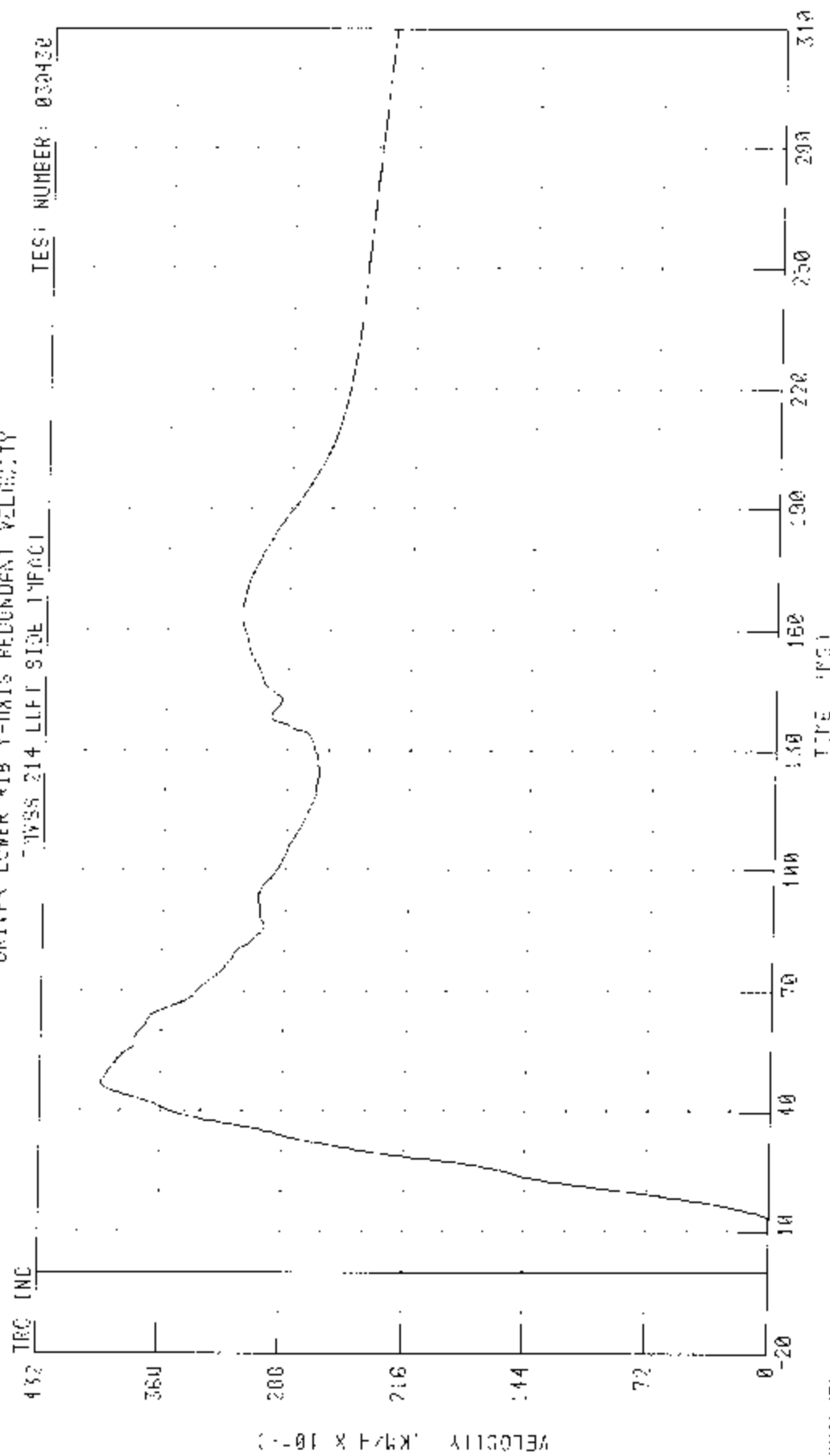
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 PHV 125)
 DRIVER LOWER RIB 7 AXLS REDUNDANT ACCELERATION



CHANNEL LLRY01 FILTER CH. CLASS 1000
 PLAK DATA 110 100 8 135 36 MS -50 MS 0 135 84 MS

ACCELERATION (G)

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 20M X 24M 225J
 DRIVER LOWER RIB Y-AXIS REDUNDANT VELOCITY

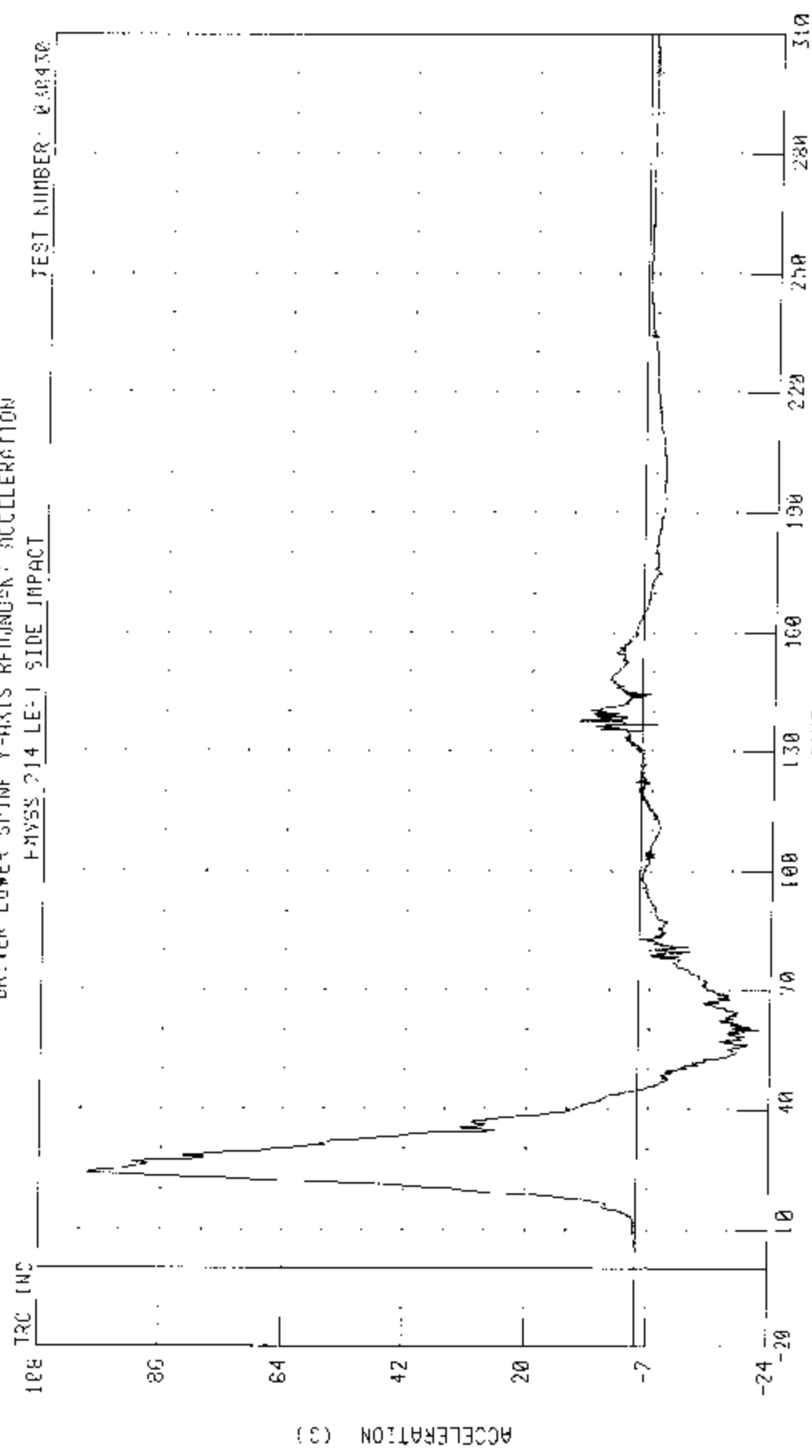


CHANNEL: LLR001 FILTER: CH CLASS 130

PEAK DATA 39.55 KPH @ 47.14 MS, A 30 KPH @ 3.20 MS

55/28 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 200.5 RMW 3251

DRIVER LOWER SPINE Y-AXIS REINFORCING ACCELERATION



CHANNEL: T12VRI FILTER: 3H GLOSS: 1000

PEAK DATA: 93.28 G @ 74.24 MS; -22.41 G @ 24.00 MS

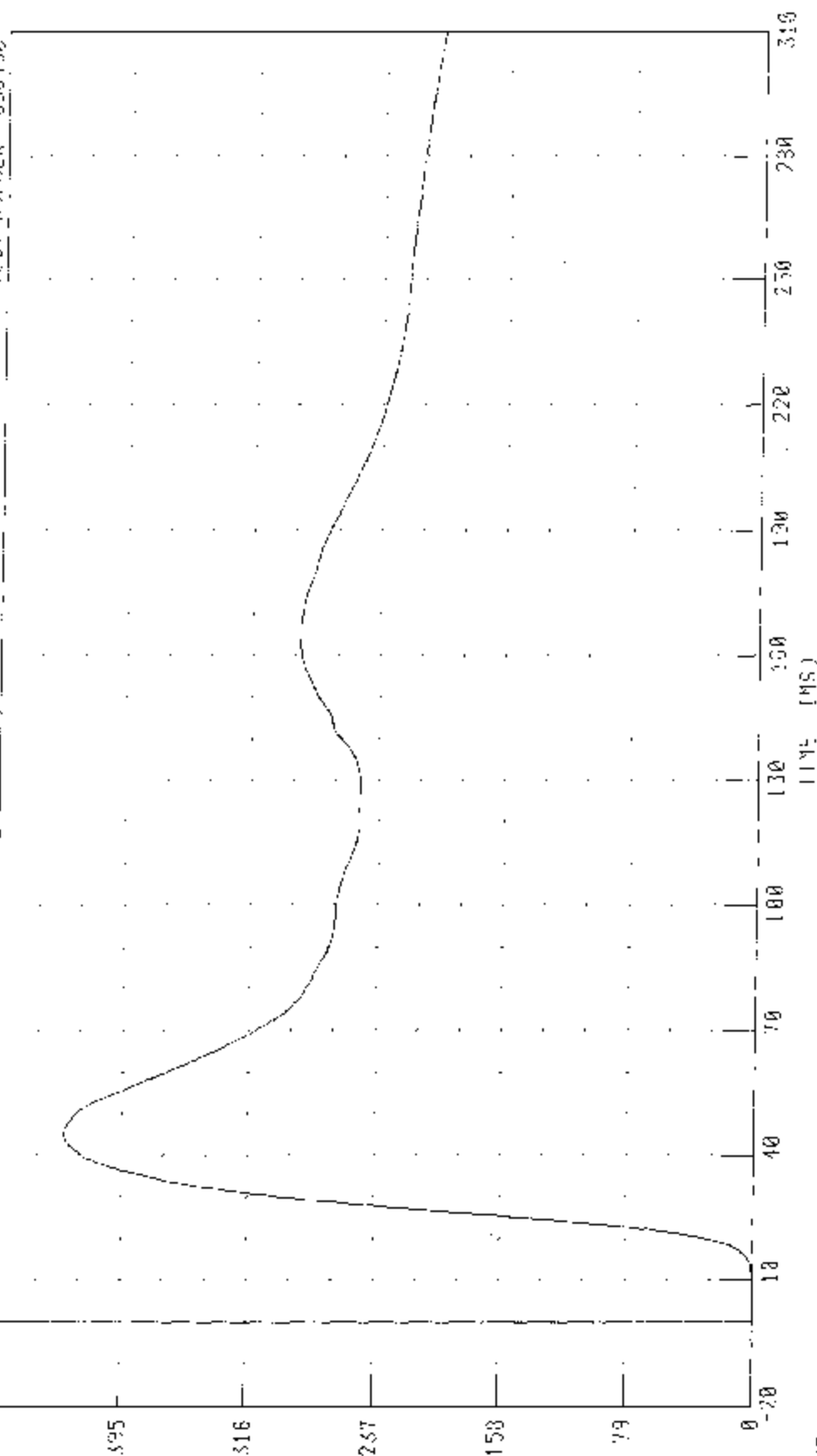
55/28 KPH 30 DEGREE SLIP IMPACT (MOVING DEFORMABLE BARrier) INTO LEFT SIDE OF 2003 BMW (251)
 DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

100 INU

PHYS 214 LEFT SIDE IMPACT

TEST NUMBER: 330430

VELOCITY (KM/H X 10⁻¹)



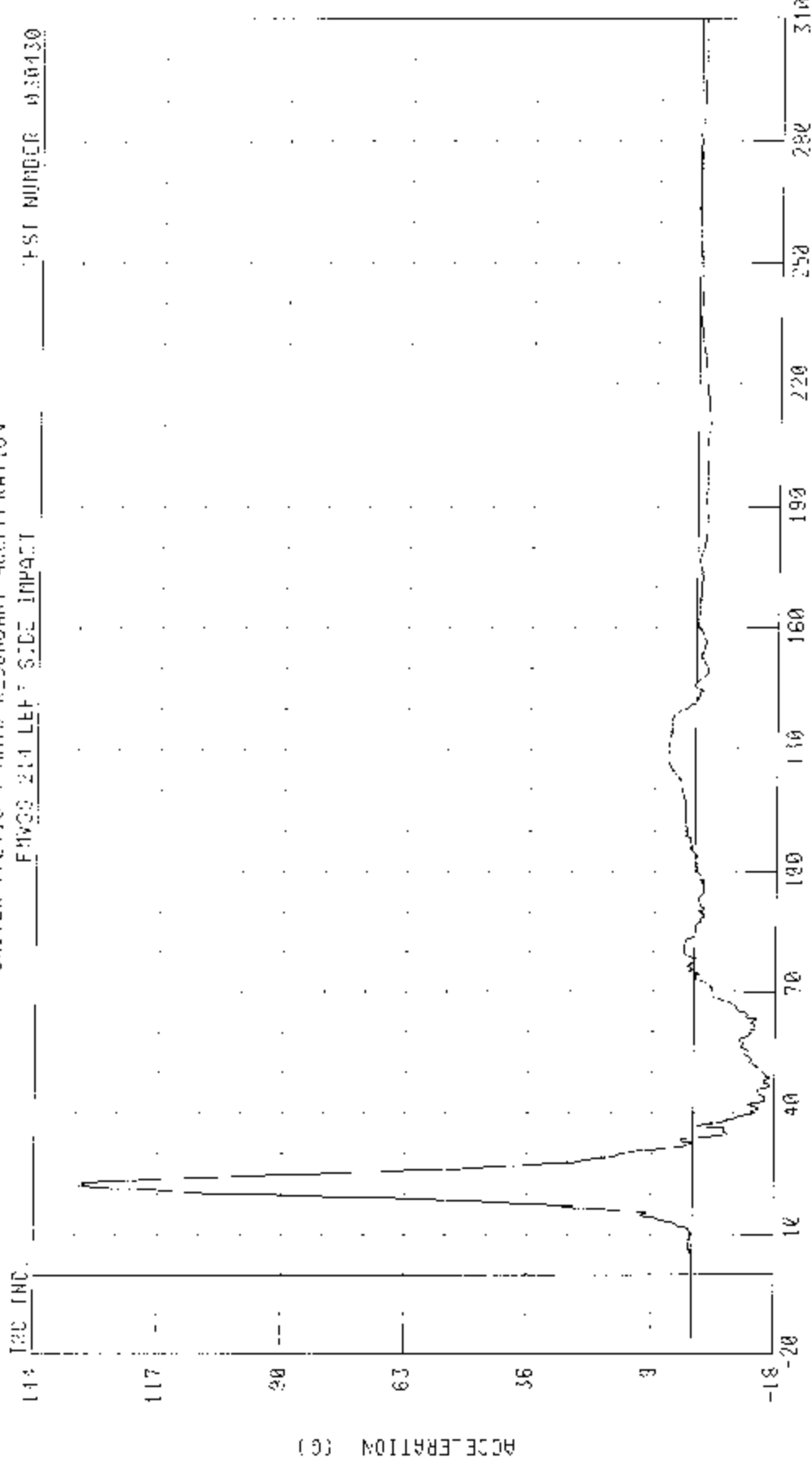
CHANNEL: 112VVI FILTER: CH CLASS: 180

REF: DATE 13 12 2003 04 45 00 MS; 0 30 20 40 0 0 00 15

55/20 KPH 92 DEGREE SLIP IMPACT (MOVING DEFORMABLE CARRIER: INTO LEFT SIDE OF 2000 RPM 325;

DRIVER PLAYS Y AXIS REDUNDANT ACCELERATION

120 INC. FVCS 214 LEFT SIDE IMPACT FSI NUMBER 030430



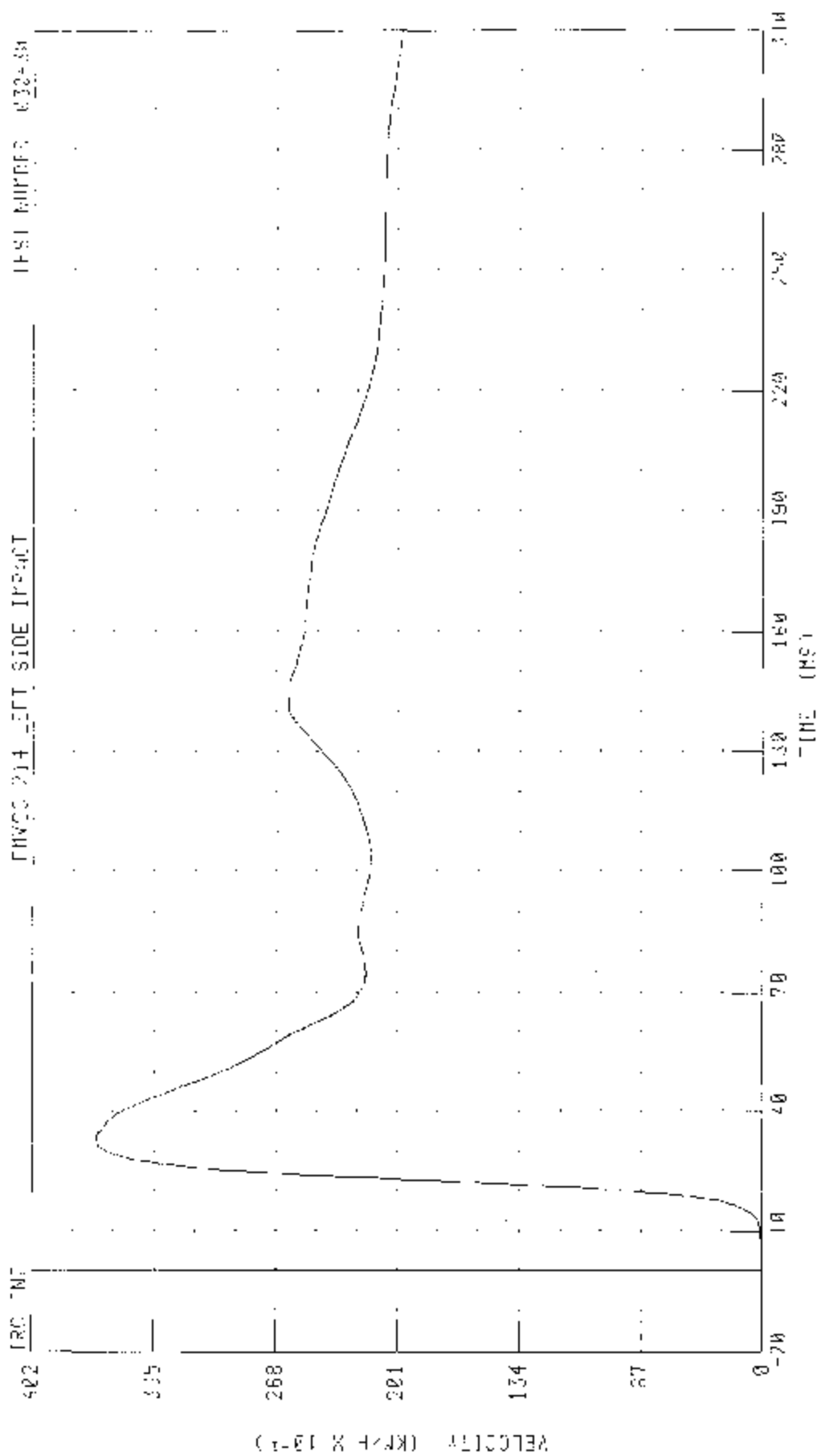
CHANNEL PEYVRI FILTER: CH CLOS 1440

TIME (FS)

PLAK DATA 154 12 3 5 77 40 35; -16 73 6 8 46 10 75

55/22 KPH 20 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 CRW 3250

DRIVER PEVVS Y-AXIS RECURRENT VELOCITY



CHANNEL PEVVS1 FILTER: CII CLASS 130

PEAK TIME 35.76 KPH 20 DEGREE SIDE IMPACT 2003 CRW 3250

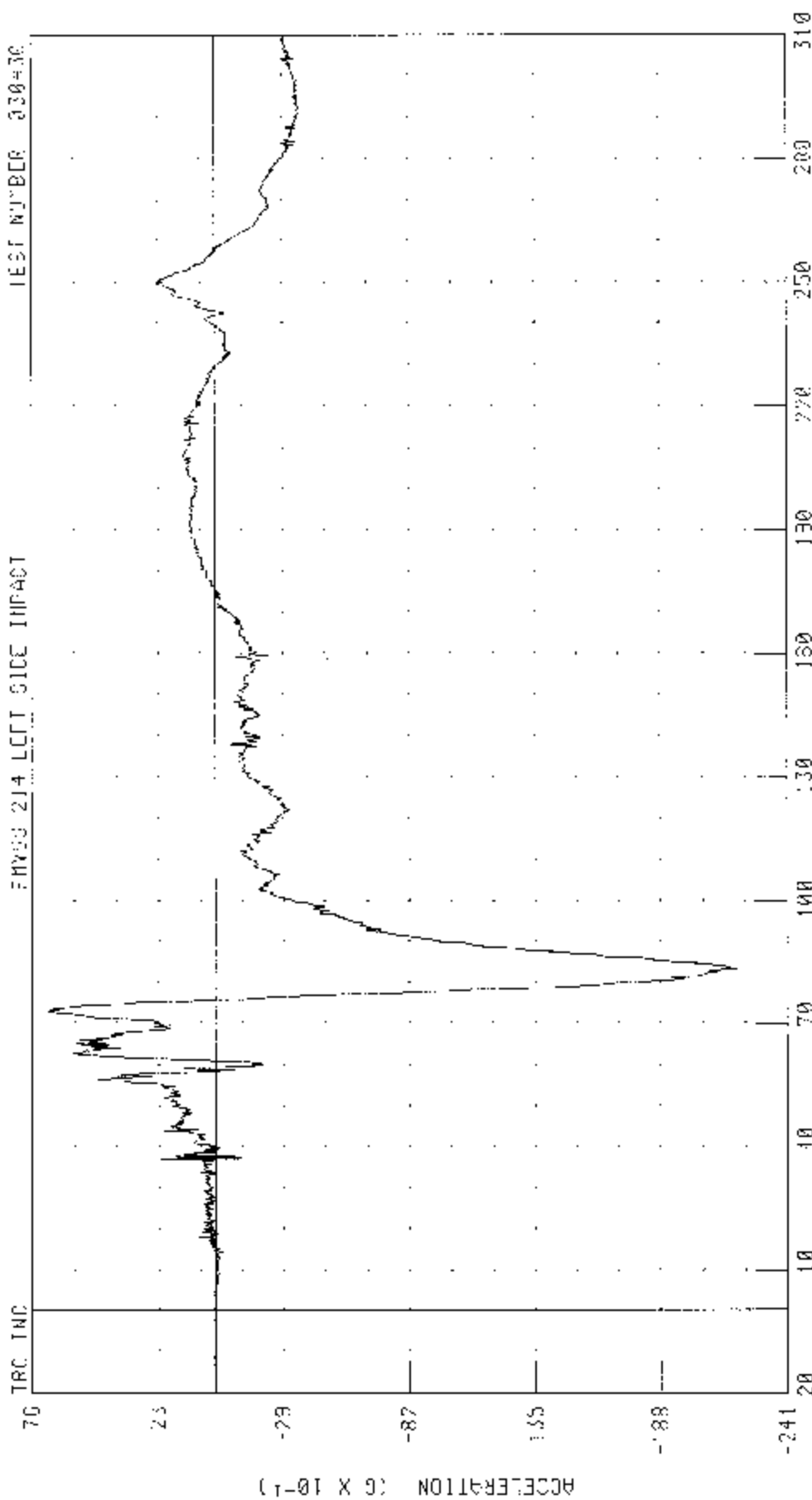
35/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN D LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER HATCH X-AXIS REDUCED ACCELERATION

TRC INC

PHYS 214 LEFT SIDE IMPACT

TEST NUMBER 330430



TIME (MS)

CHANNEL: HFDXR4 FILTER: CH CLASS: 1000

PEAK DATA: 04 G @ 72.80 MS, -71.98 G @ 85.52 MS

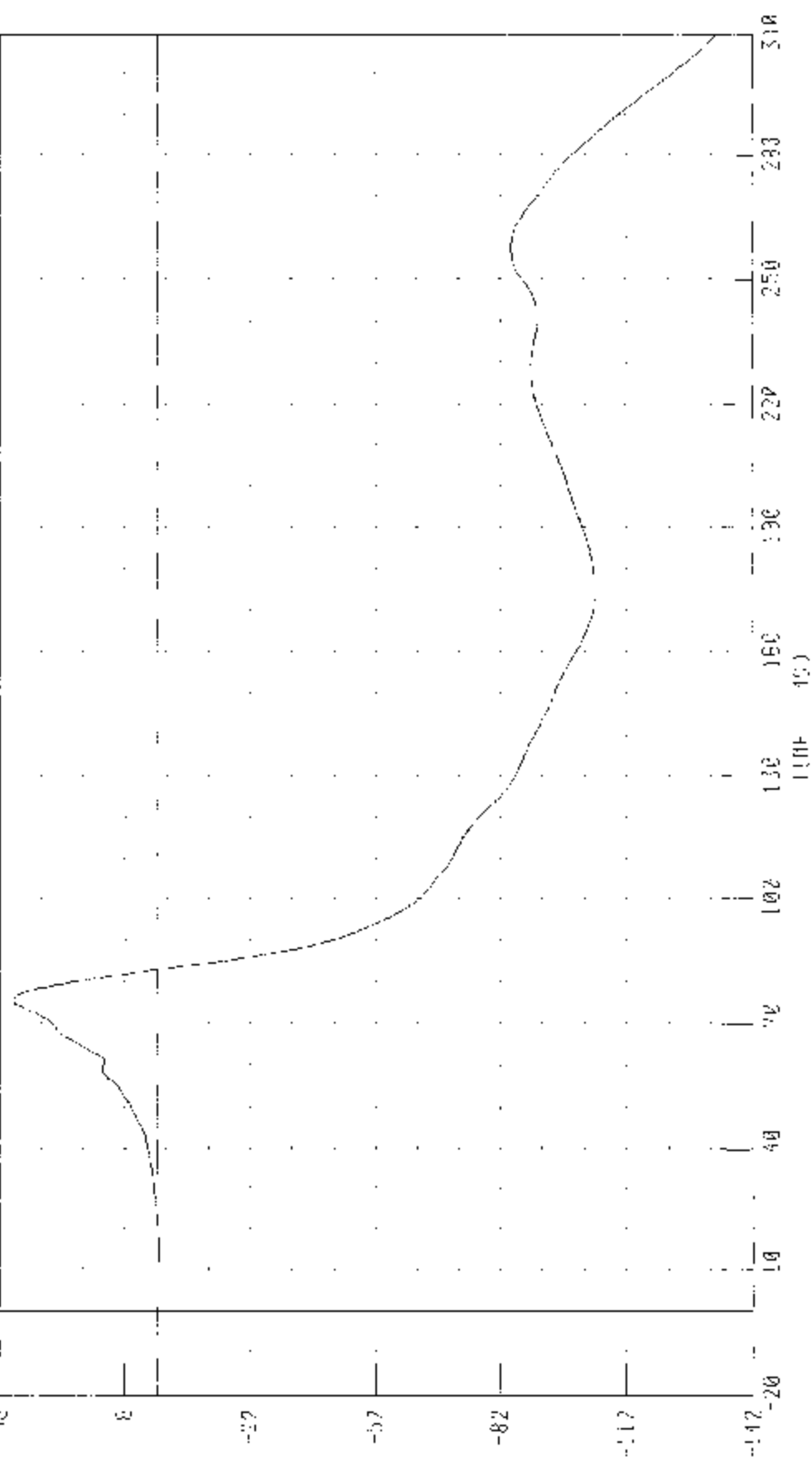
95/20 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER HEAD X-AXIS REDUNDANT VELOCITY

190_190_

FMSS 214 LEFT SIDE IMPACT

TEST NUMBER 030-30



UNIT: MS

CHANNEL FFDXV FILTER ON LOSS 130

PEIC TRIM: 3 19 K14 0 75 50 P% -13 16 K14 0 314 00 1S

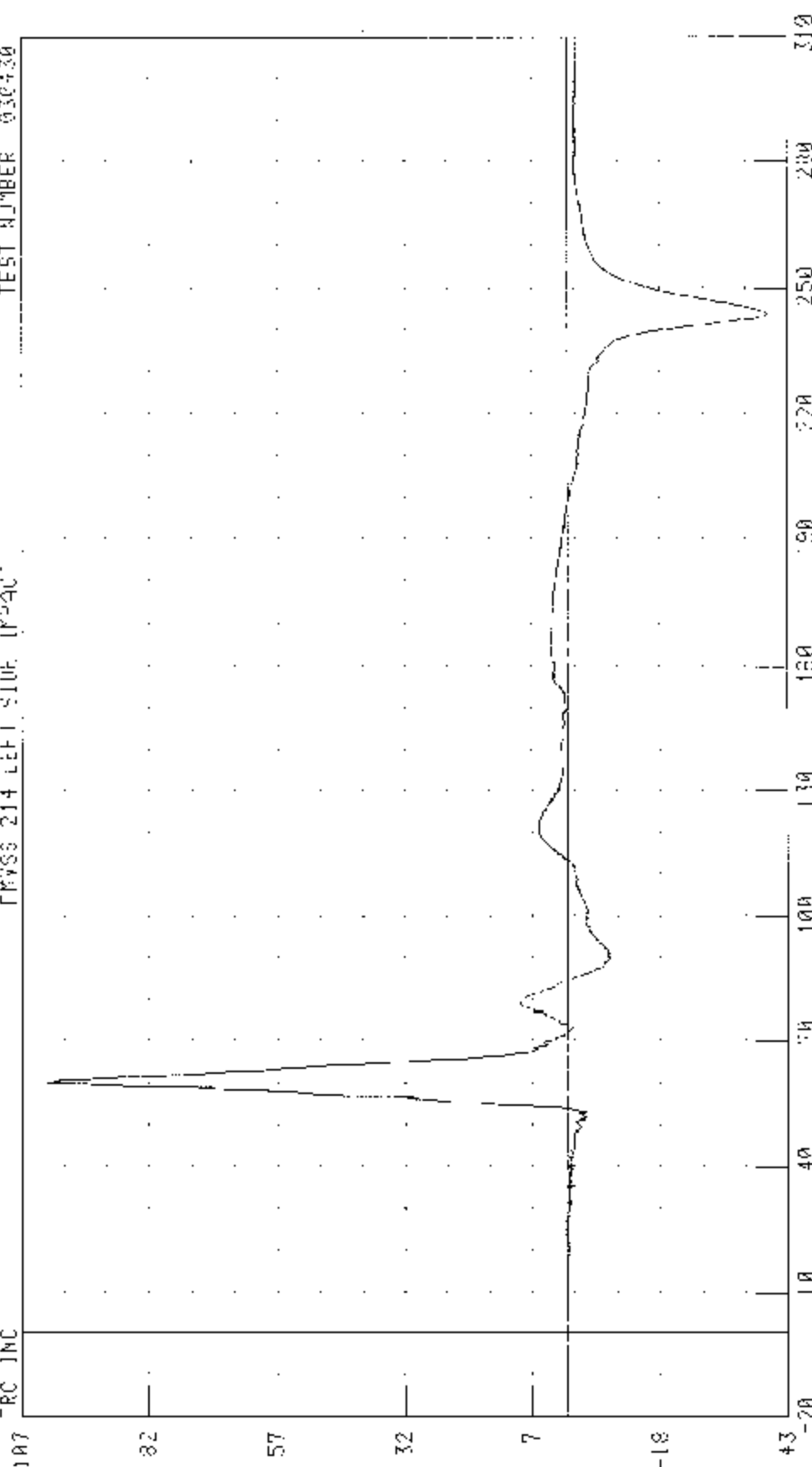
55/26 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER HEAD X AXIS REDUNDANT ACCELERATION

TEST NUMBER 030430

TRUSS 214 LEFT SIDE IMPACT

TRC INC

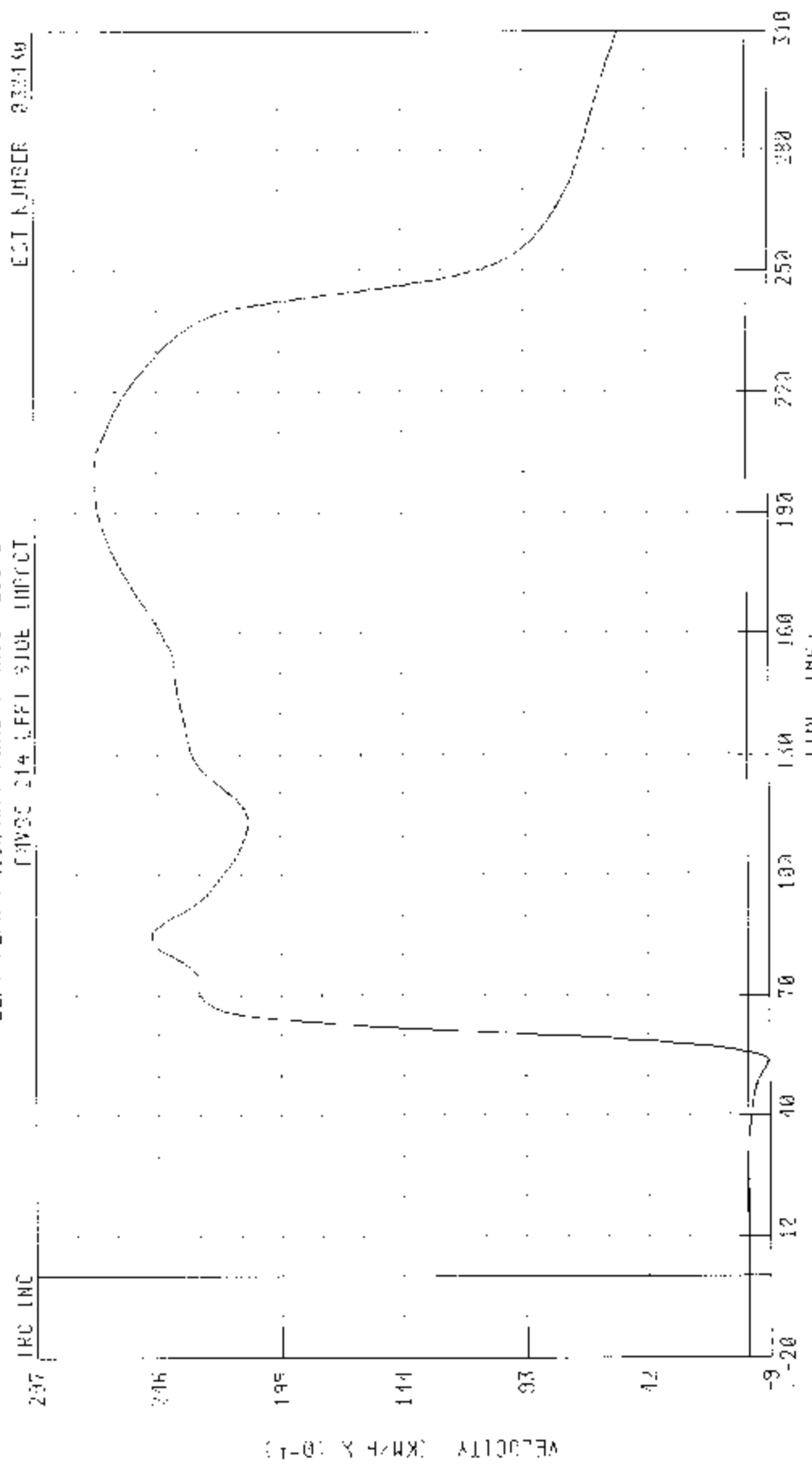


TIME (MS)

CUANVILLE - FL00744 FILTER ON CLASS 1000

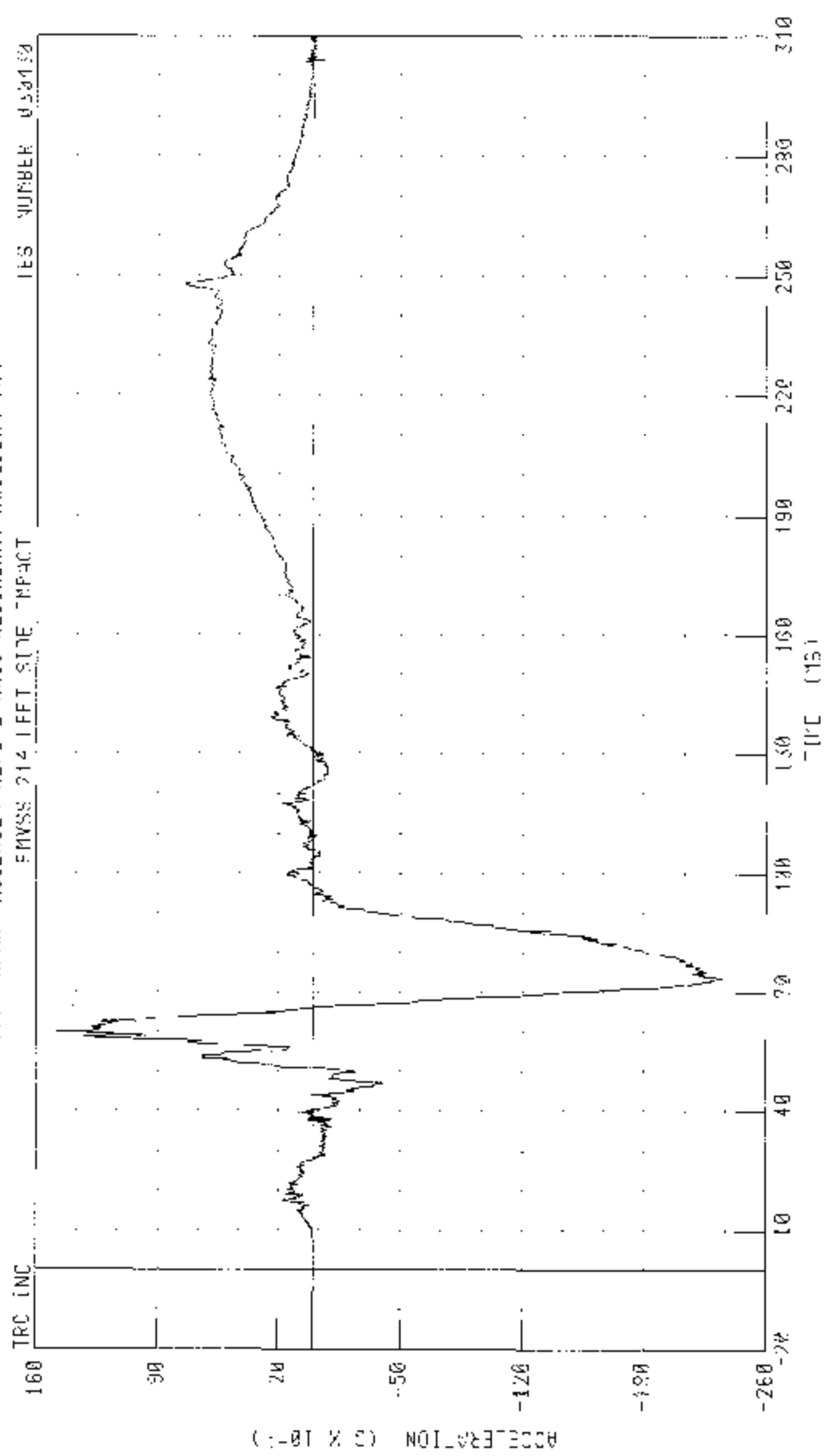
DEAC DATA: 182 21 0 0 00 24 MS 38 20 0 0 243 68 18

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 20M5 HWY 3251
 LEFT REAR PASSENGER HEAD Y AXIS REDUNDANT VELOCITY



CHANNEL 002% FILTER: CII CLASS 100
 PEAK LOC: 71.71 KPH @ 103.72 MS; -0.85 KPH @ 20.98 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i
 LEFT REAR PASSENGER HEAD Z-AXIS REDUNDANT ACCELERATION



CHANNEL H00224 FILTER CH. CLASS 1000

FFAC DATA 11 95 0 0 39 92 MS; -23.43 0 0 13 00 MS

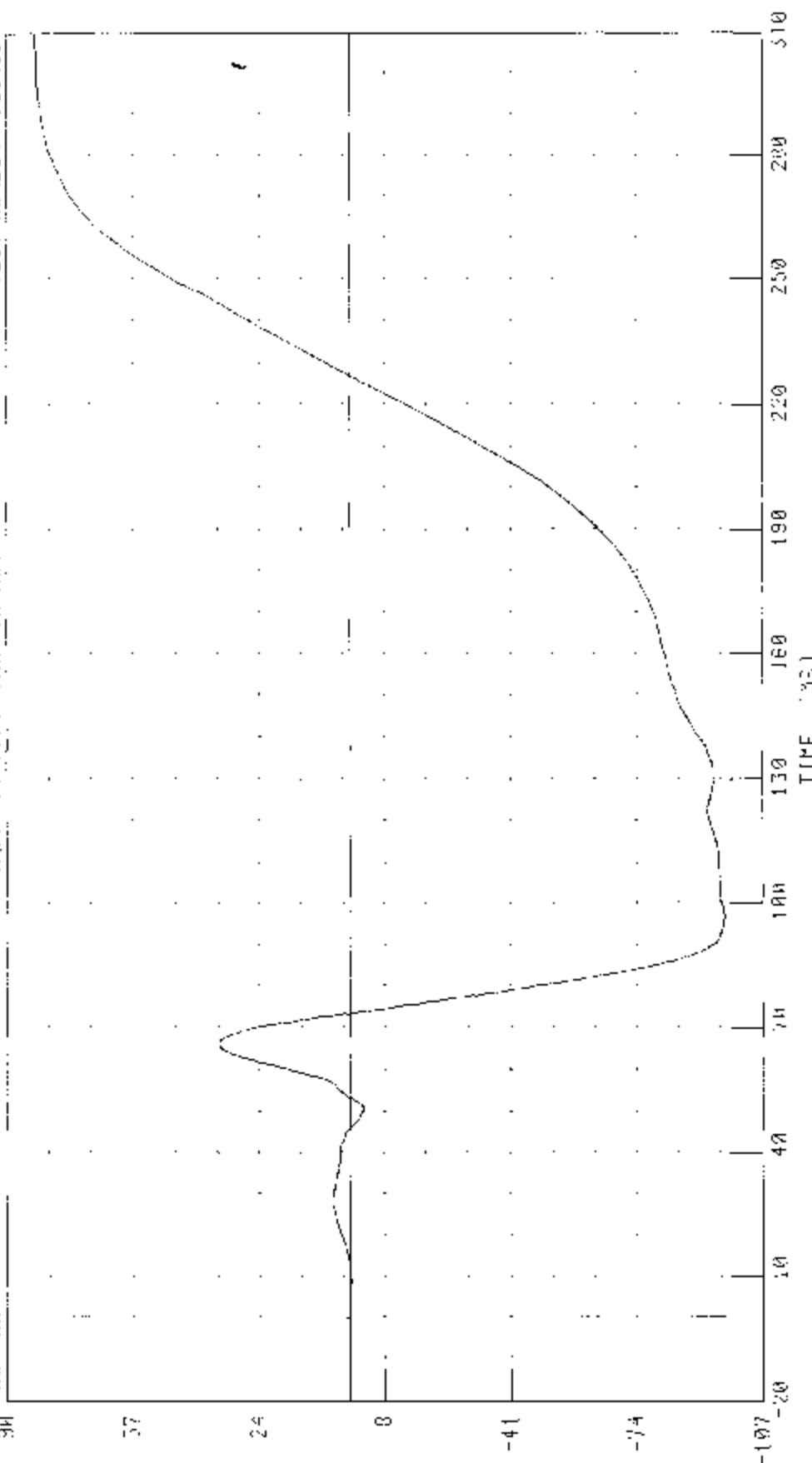
55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2004S BMW 325i

LEFT HEAD PASSENGER HEAD Z AXIS REDUNDANT VELOCITY

TRC .MFC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



TIME (MS)

CHANNEL: HEADZVJ FILTER: CIP, CLASS: 130

PEAK DATA: 5/4 X 10^-4 0.010 MW 15, -0.81 KPH 3.9E 72 MS

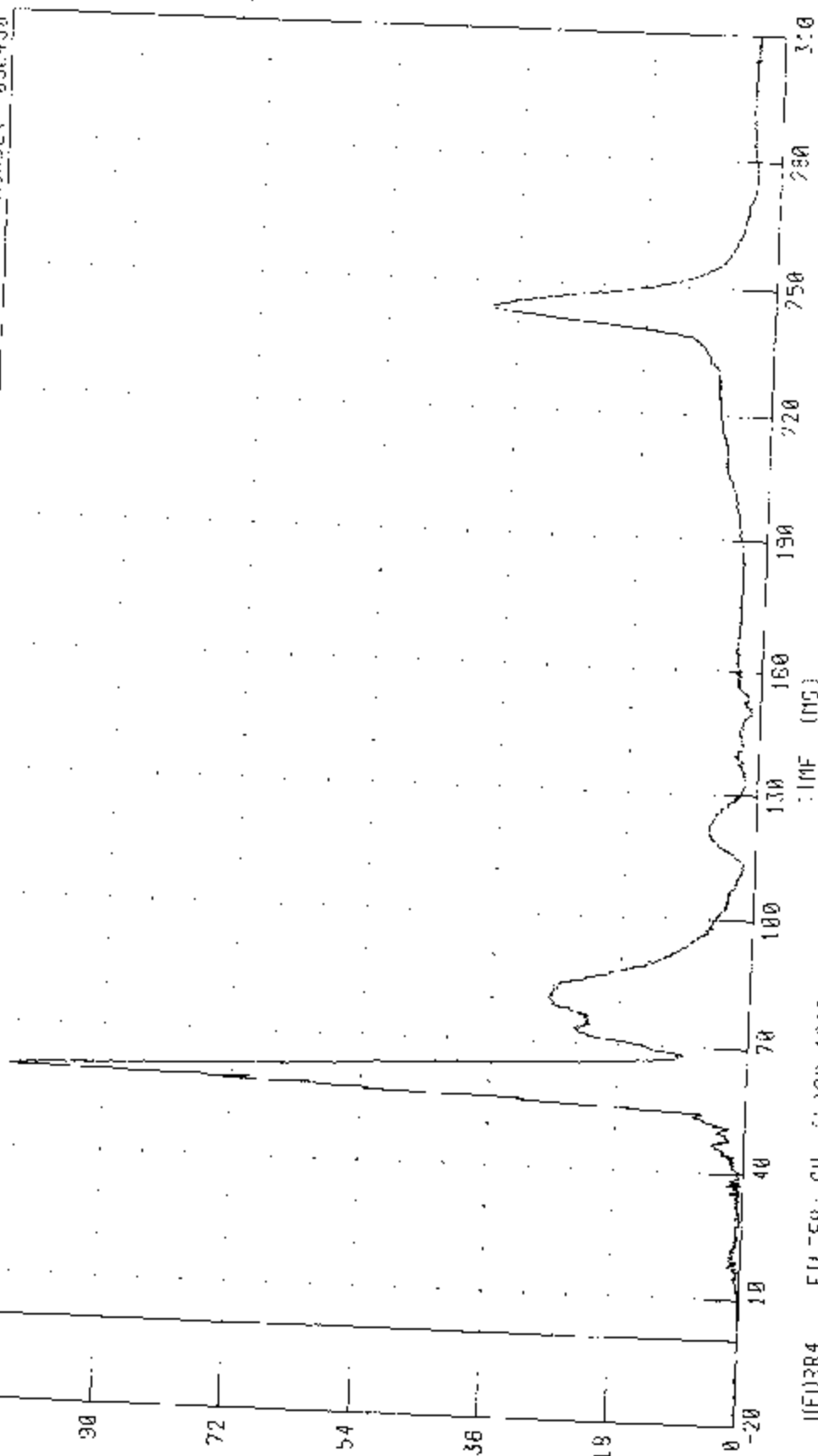
VELOCITY (KPH X 10^-3)

55.28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i
LEFT REAR PASSENGER HEAD RESULTANT REDUNDANT ACCELERATION

TRC INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



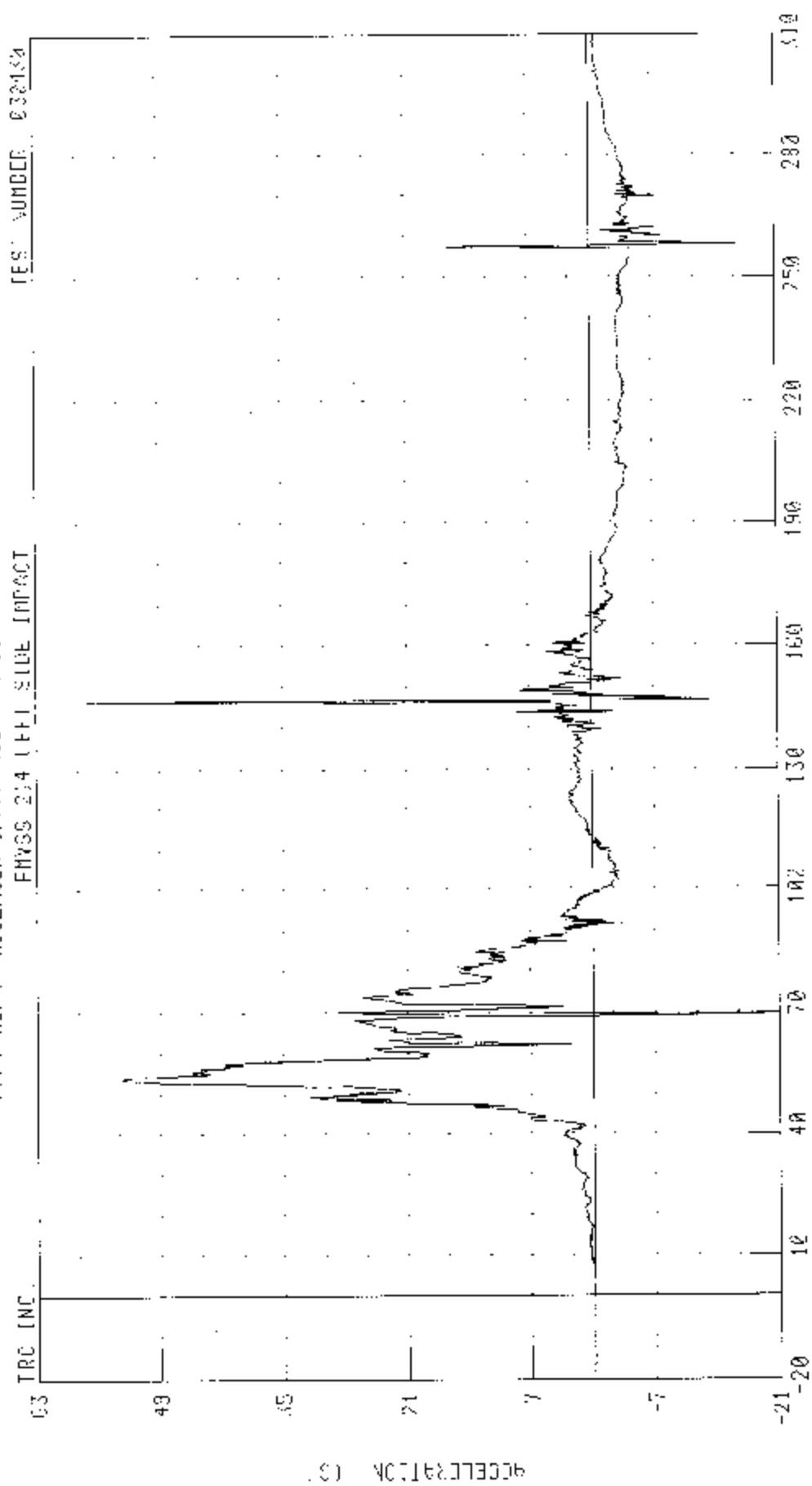
ACCELERATION (G)

CHANNEL 1IED3R4 FILTER: CII CLASS 1000

TIME (MS)

PLAK DATA 193.08 S 3.50 24 MS. 0 01 S 0 -16 56 MS

55/28 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INIT LEFT SIDE OF 2ND & HWY 325J
 LEFT REAR PASSENGER UPPER RIB V-12'S R-IMPACT ACCELERATION



CHANNEL 1 JRY114 FILTER 01 CLASS 1000

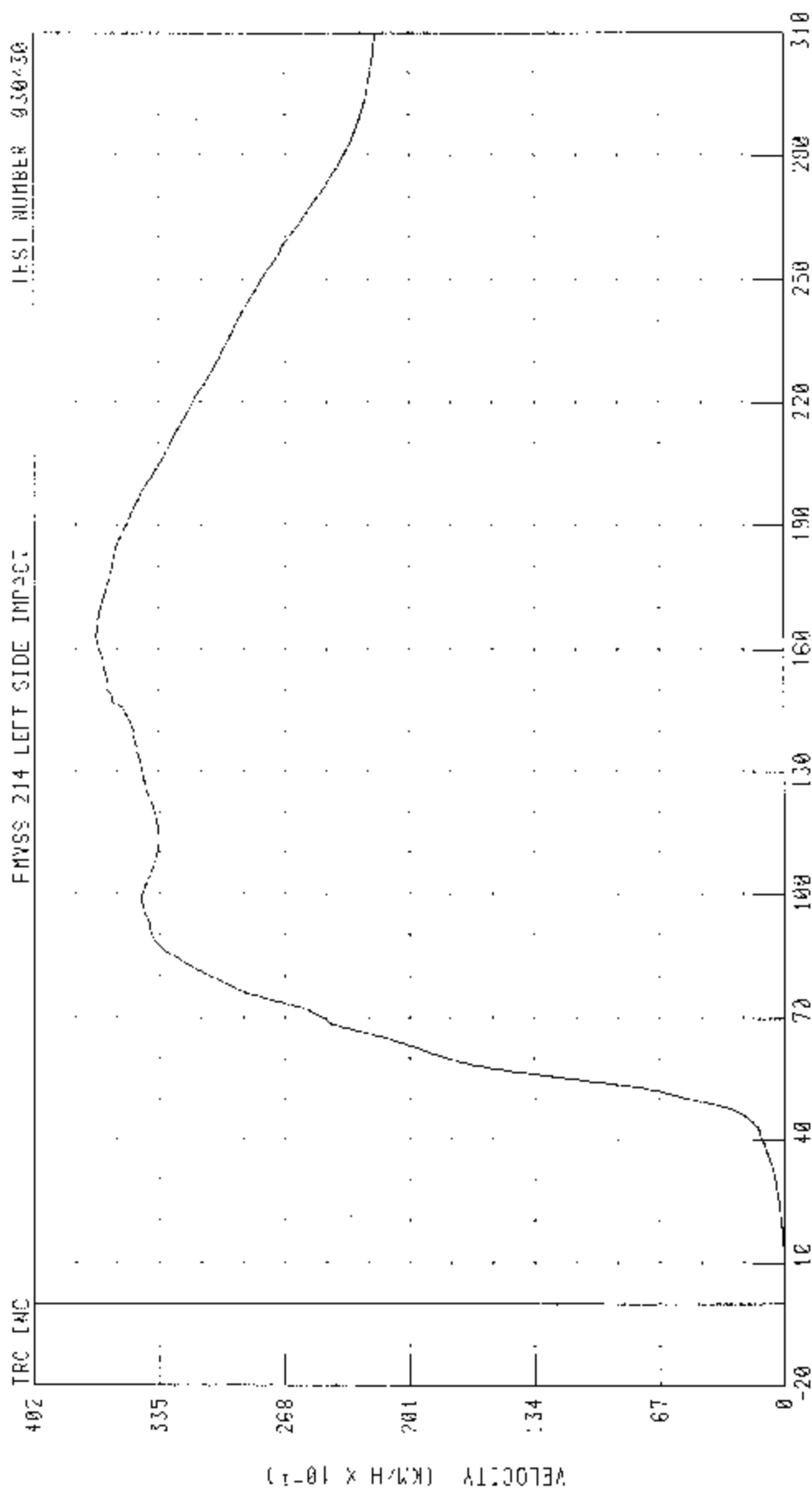
LINK DATA: 57.52 G @ 146.56 MS, -10.33 G @ 69.52 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2203 EFW 325j

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 030430

FWSS 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA 35 85 KM/H @ 100.04 MS, 3.00 KM/H @ 0 00 MS

CHANNEL - LUPYUJ FILTER CH CLASS 180

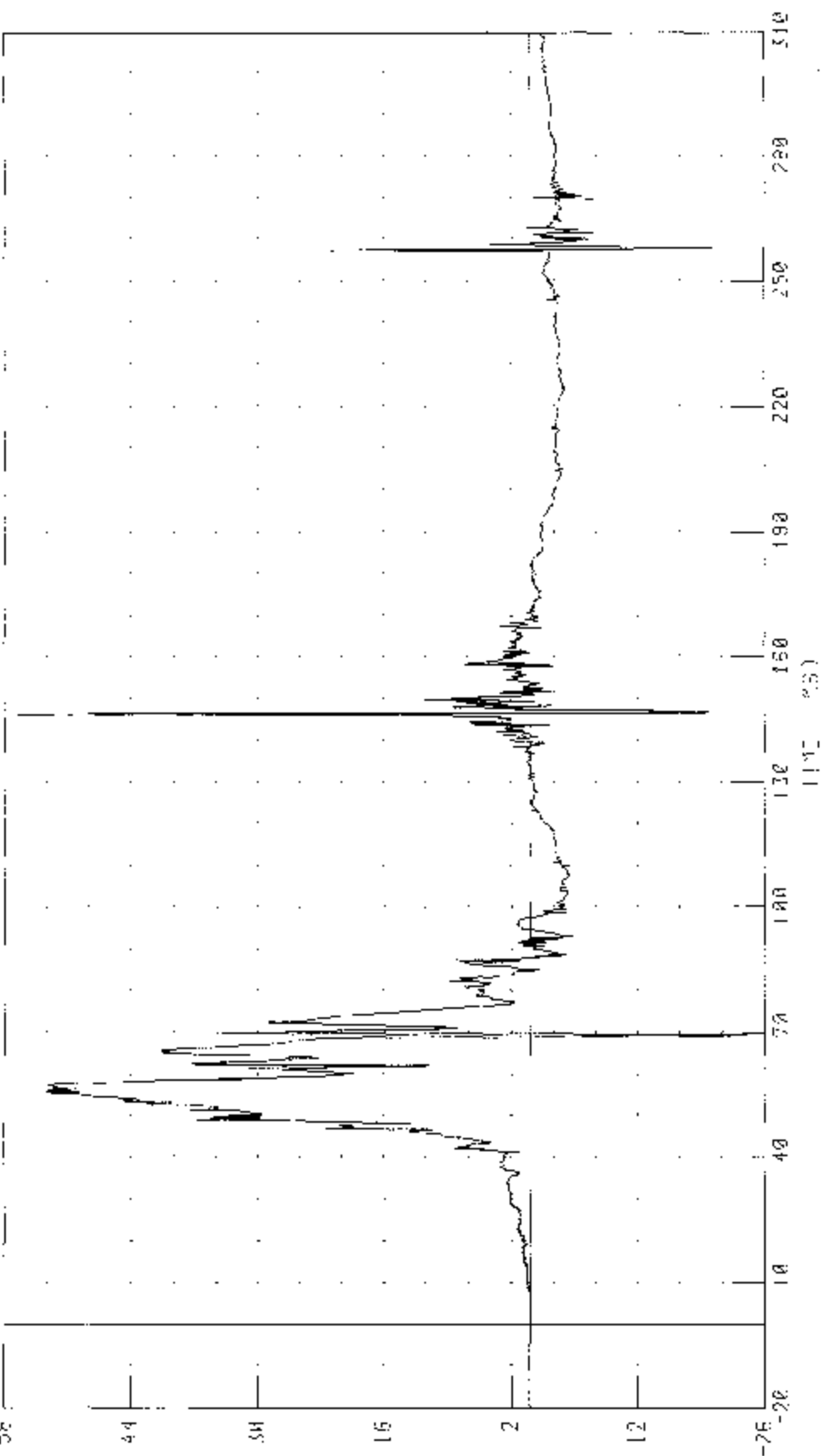
55/20 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 31W 3251

LEFT REAR PASSENGER LOWER R14 Y AXIS REDUCED/AN' ACCELERATION

130.100

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



11.12

CHANNEL: 114734 F-LIF-4: CH CLPSS 1000

PEAK DATA 58.47 0.6 143.56 MS; -24.16 0.0 69.52 MS

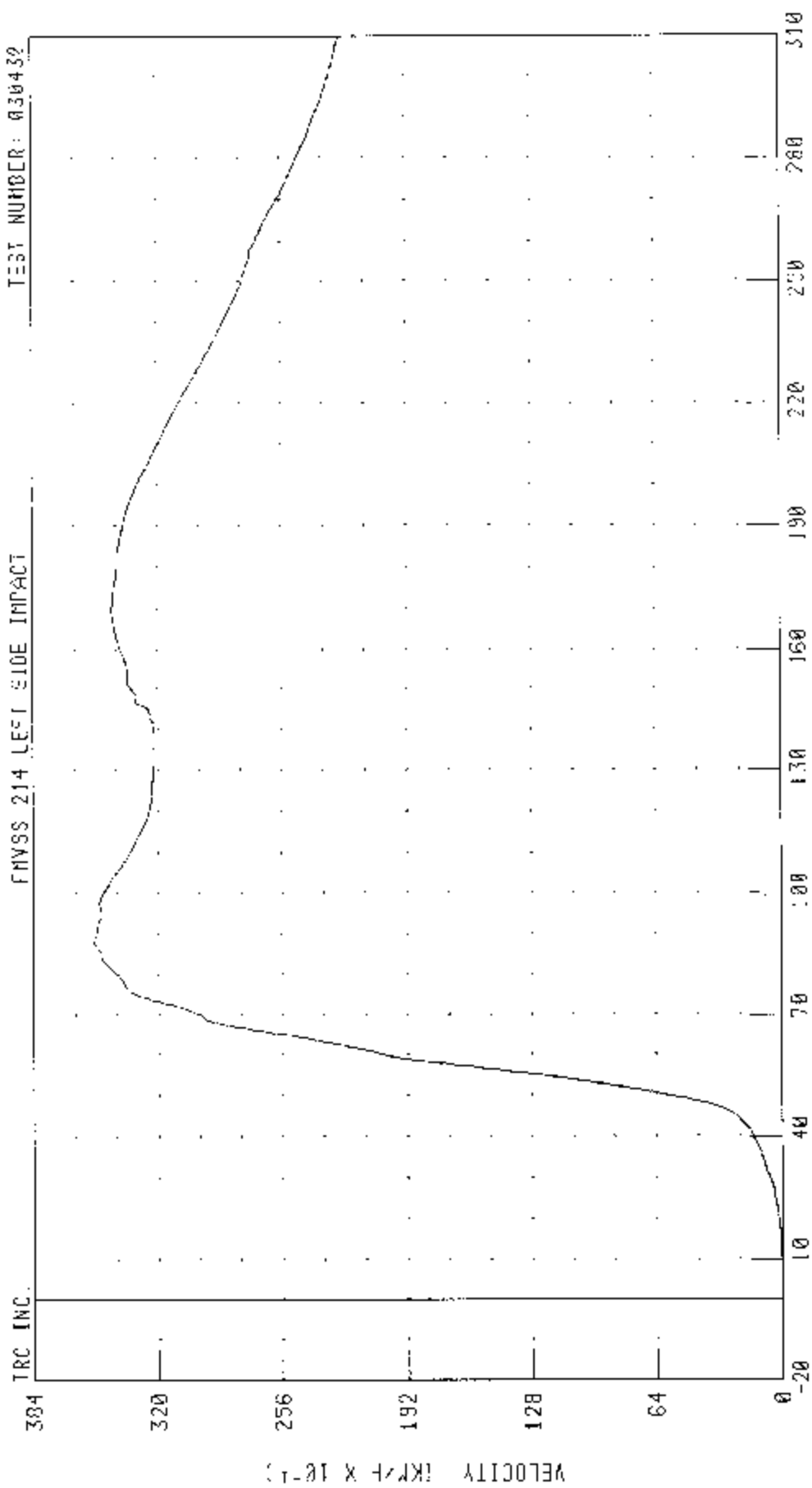
(3) NOT LOSE 13000

55/28 KPH 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 ENH 3251

LEFT REAR PASSENGER LOWER RIB Y-AXIS REBOUNDANT VELOCITY

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT



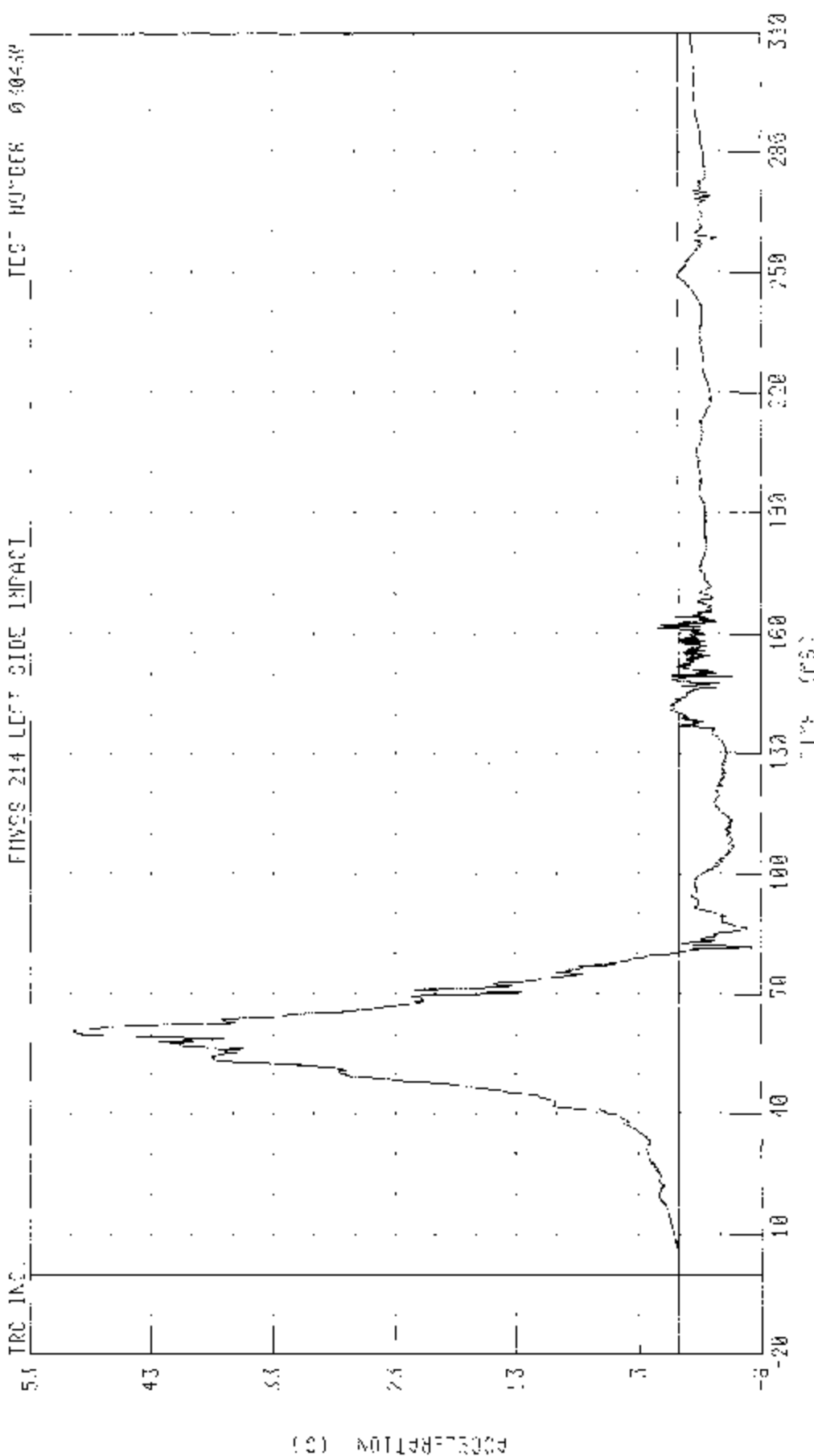
CHANNEL: ILRVU FILTER CH CLASS 180

PEAK DATA: 35 31 KPH 3 88 03 MS 0.00 KPH 0 0 00 13

50/20 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2002 B/W 3251

LEFT REAR PASSENGER LOWER SPINE 7-AXIS REDUNDANT ACCELERATION

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 040430



CHANNEL: T12YR4 FILTER: CH CLASS: 1000

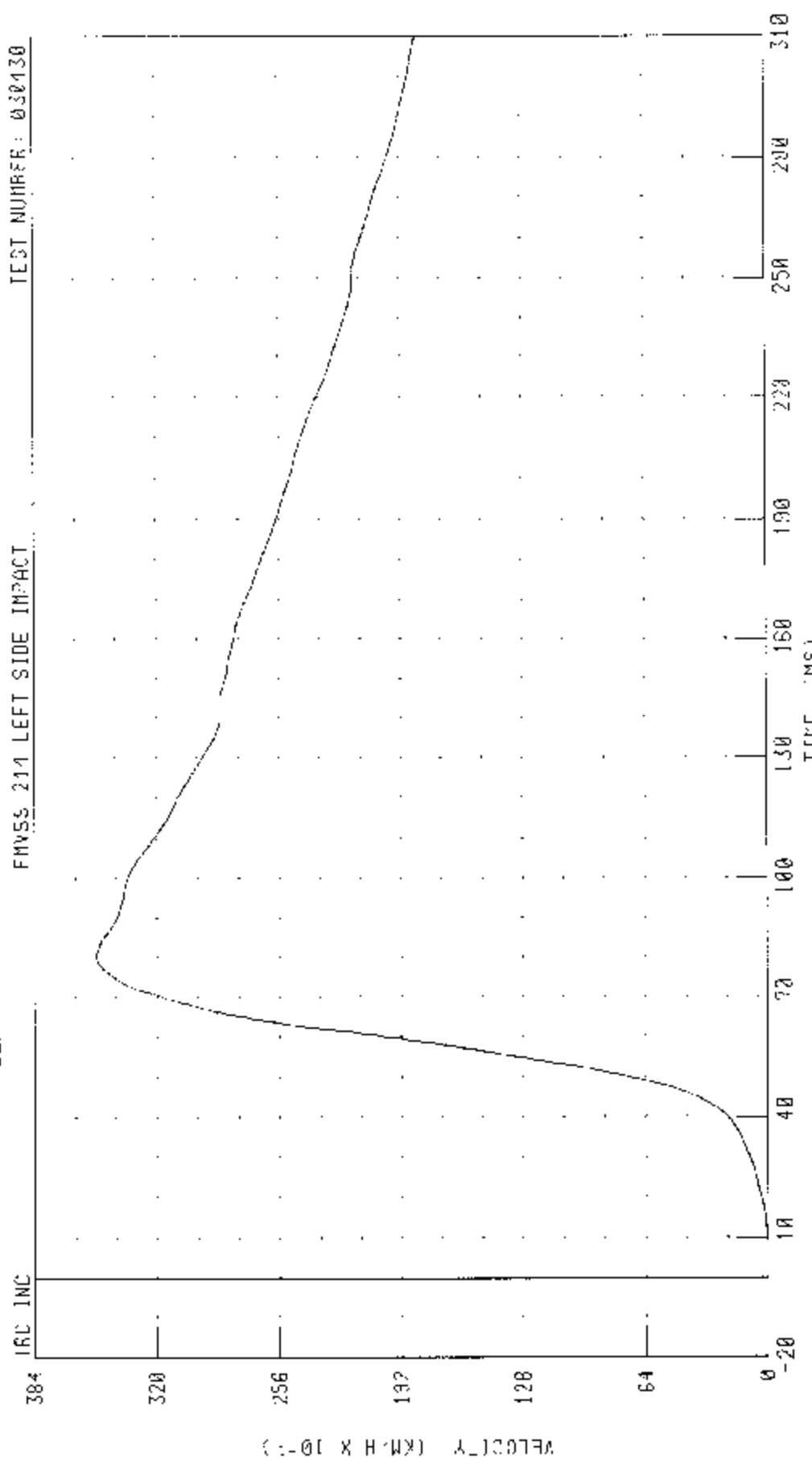
PEAK DATE: 48 04 00 00 20 10 -5 24 00 00 81 04 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER: IN'D LEFT SIDE OF 2003 BMW 325i)

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



TIME (MS)

CHANNEL: 112YVJ FILTER: 50. CLASS: 160

PEAK DATA: 35.1% KPH 0.80.56 MS; 2.00 KPH 0.00 MS

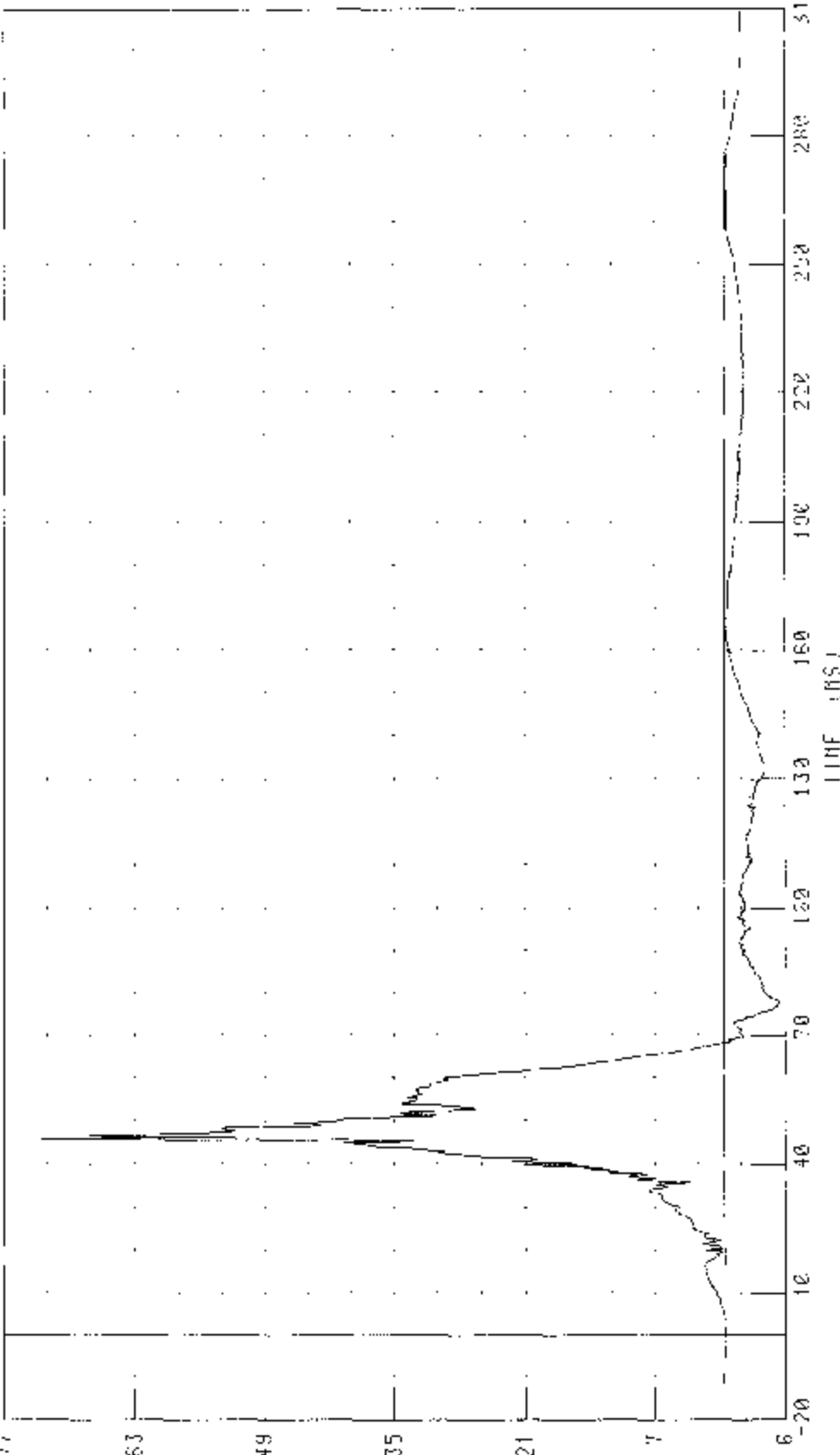
55-23 <P4 90° DEGREE SIDE IMPACT (MOVING DEFENDABLE BARRIER) INTO 1-1-1 SIDE OF 2003 BMW 325.

LEFT REAR PASSENGER PELOVIS Y-AXIS RETENTION: ACCELERATION

TEST NUMBER 450432

ENVSS 214 LEFT SIDE IMPACT

TRC INC.



CLARKH - PEVY94 FILTER CH CLASS 1000

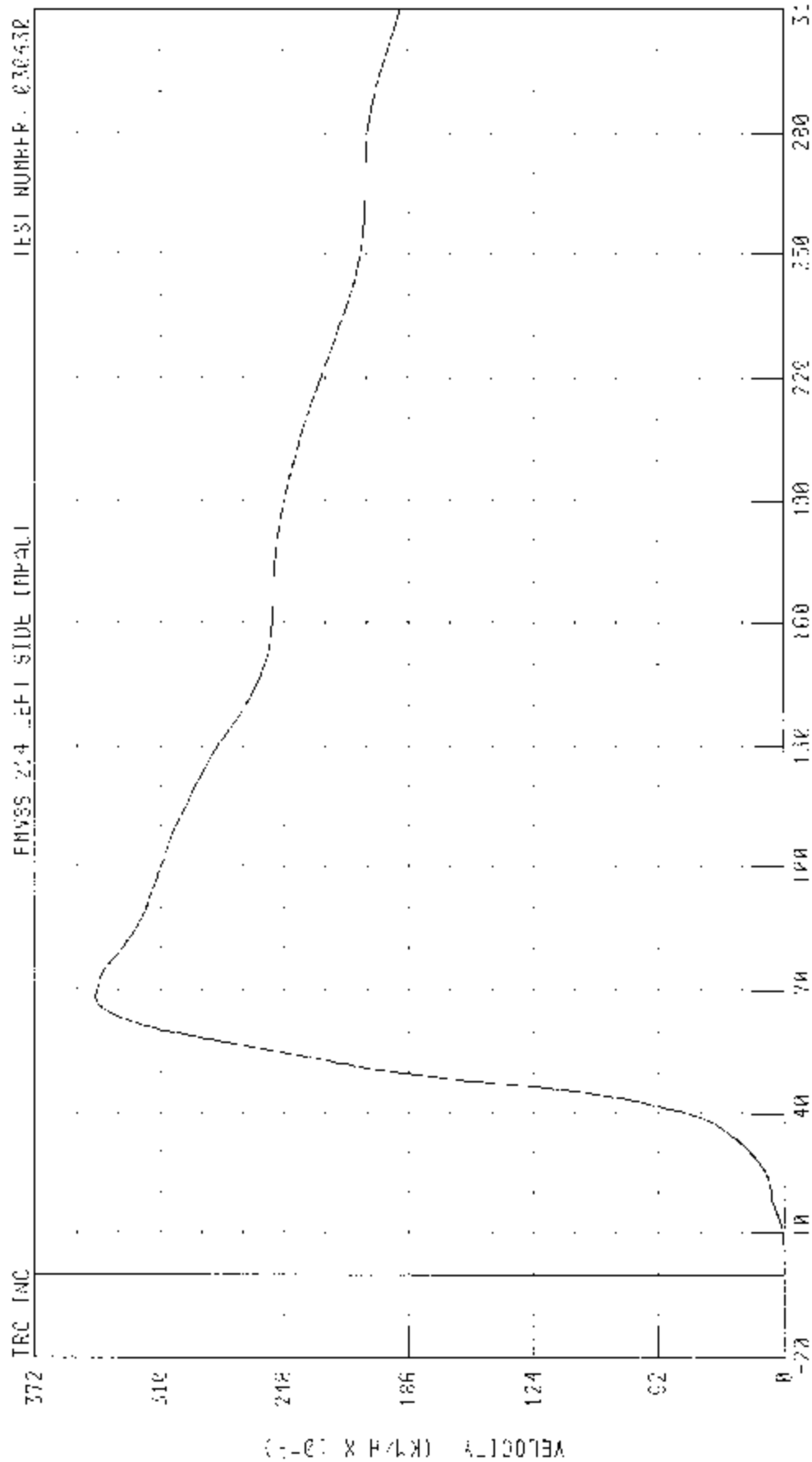
PEAK DATA 13.42 3.8 46.00 N/A 5.58 5.0 77.52 93

55/26 <PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER PELVIS Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030430

FNVS 214 LEFT SIDE (MPAC)



TIME (MS)

PEP (T) 34 20 KPH 68 24 15. 0 00 <PH 90 DE MS

CHANNEL FEVVJ FILTER CH. CLASS 180

Test Vehicle Instrumentation Plots

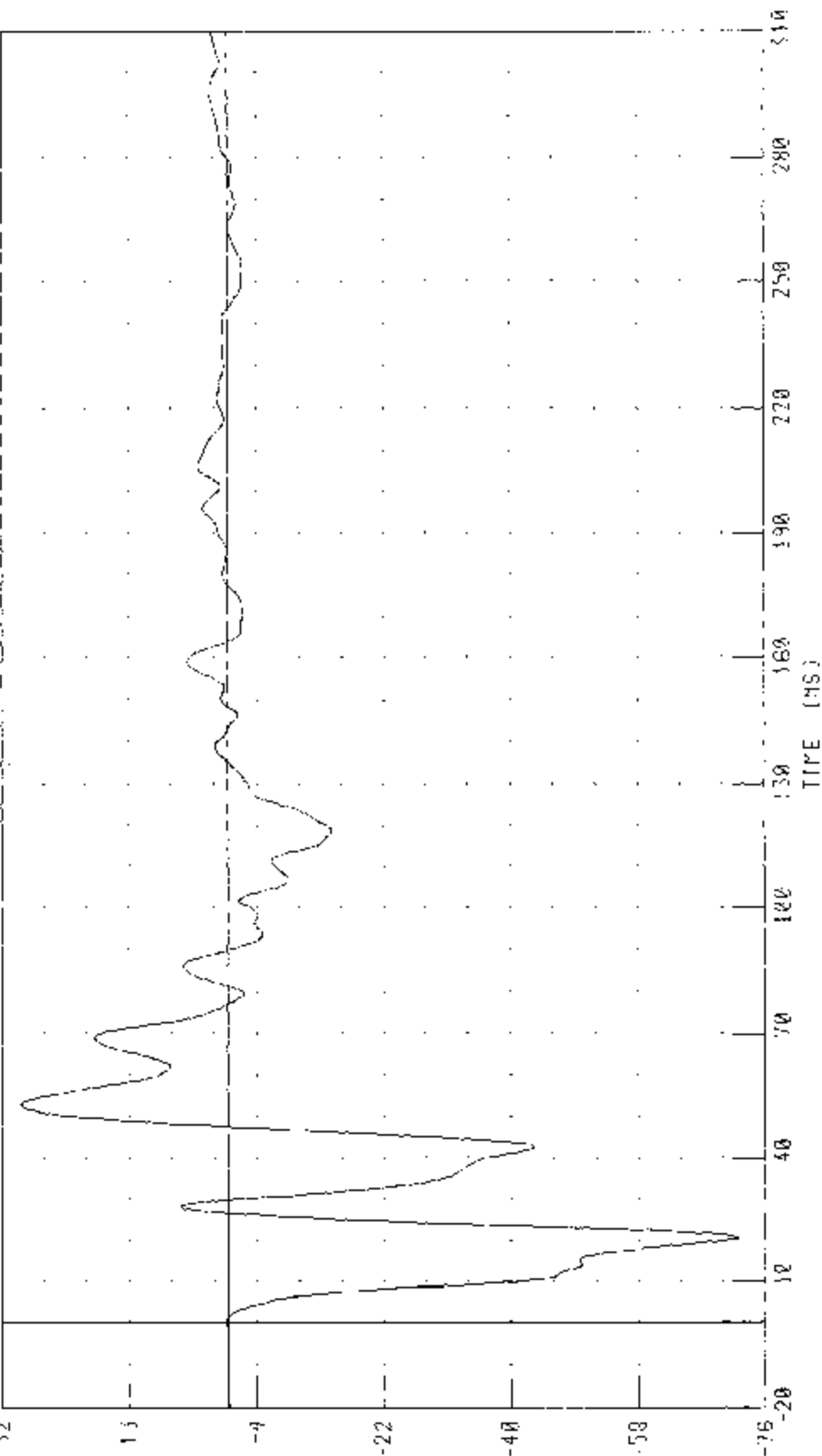
Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i
 RIGHT SIDE SILL AT FRONT SEAT X-AXIS OCCUPANTION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: R30430

32 TRC. INCH



CHANNEL RFSY01 FILTER CH CLASS 60

PEAK DATA: 2.54 G @ 53.04 MS, -7.23 G @ 70.88 MS

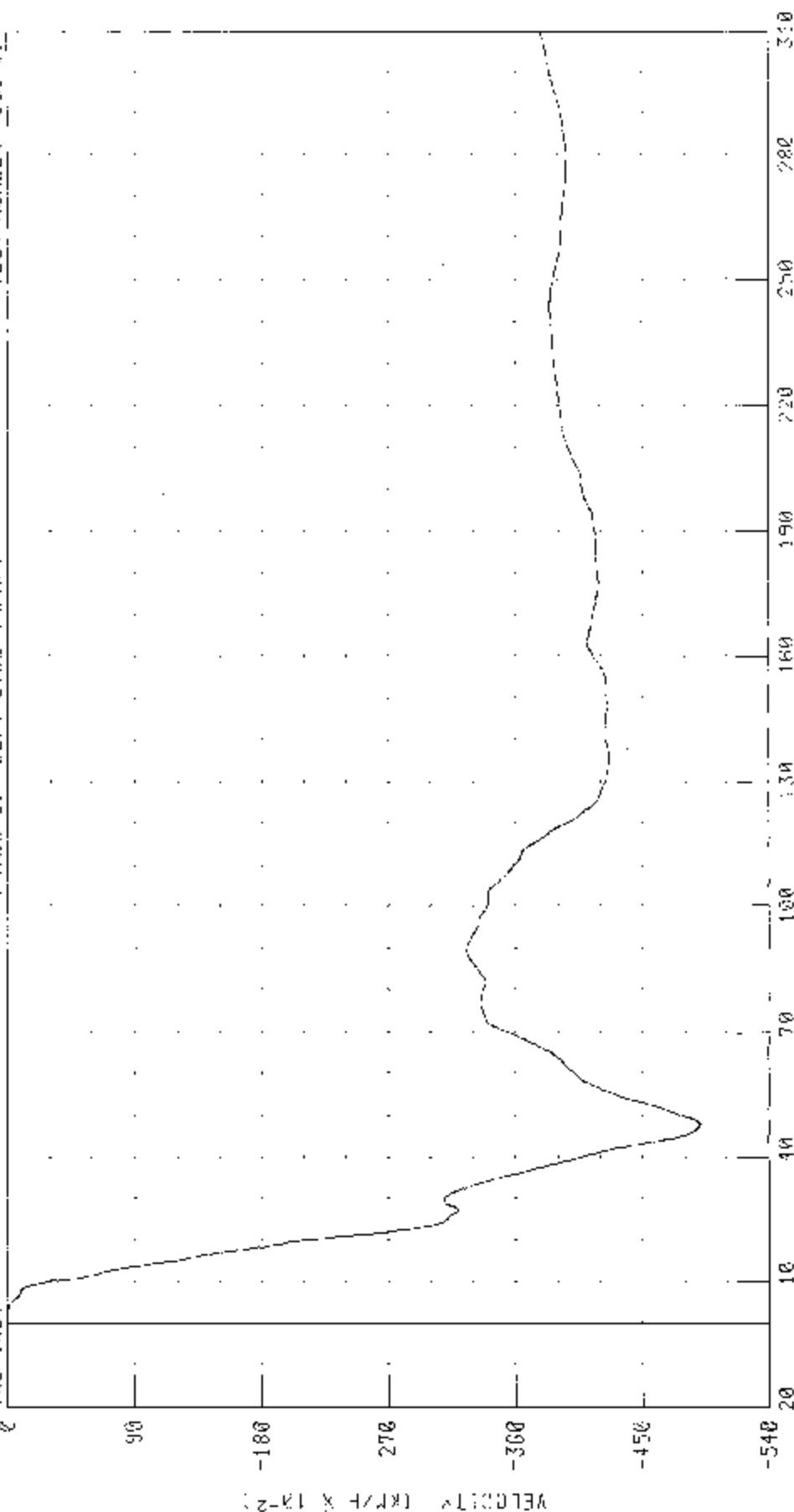
55/23 0PH 92 DEGREE SIDE IMPACT (MOVING PERFORMANCE BORDER: 14171111 SIDE OF 200X 9FW 325)

RIGHT SIDE GILL AT FRONT SEPT X AXIS VELOCITY

TEST NUMBER 030430

PHYS 214 LEFT SIDE IMPACT

0 180 INCL



UNIT: FPS

CHANNEL RFSYV1 FILTER: CH. CLASS 180

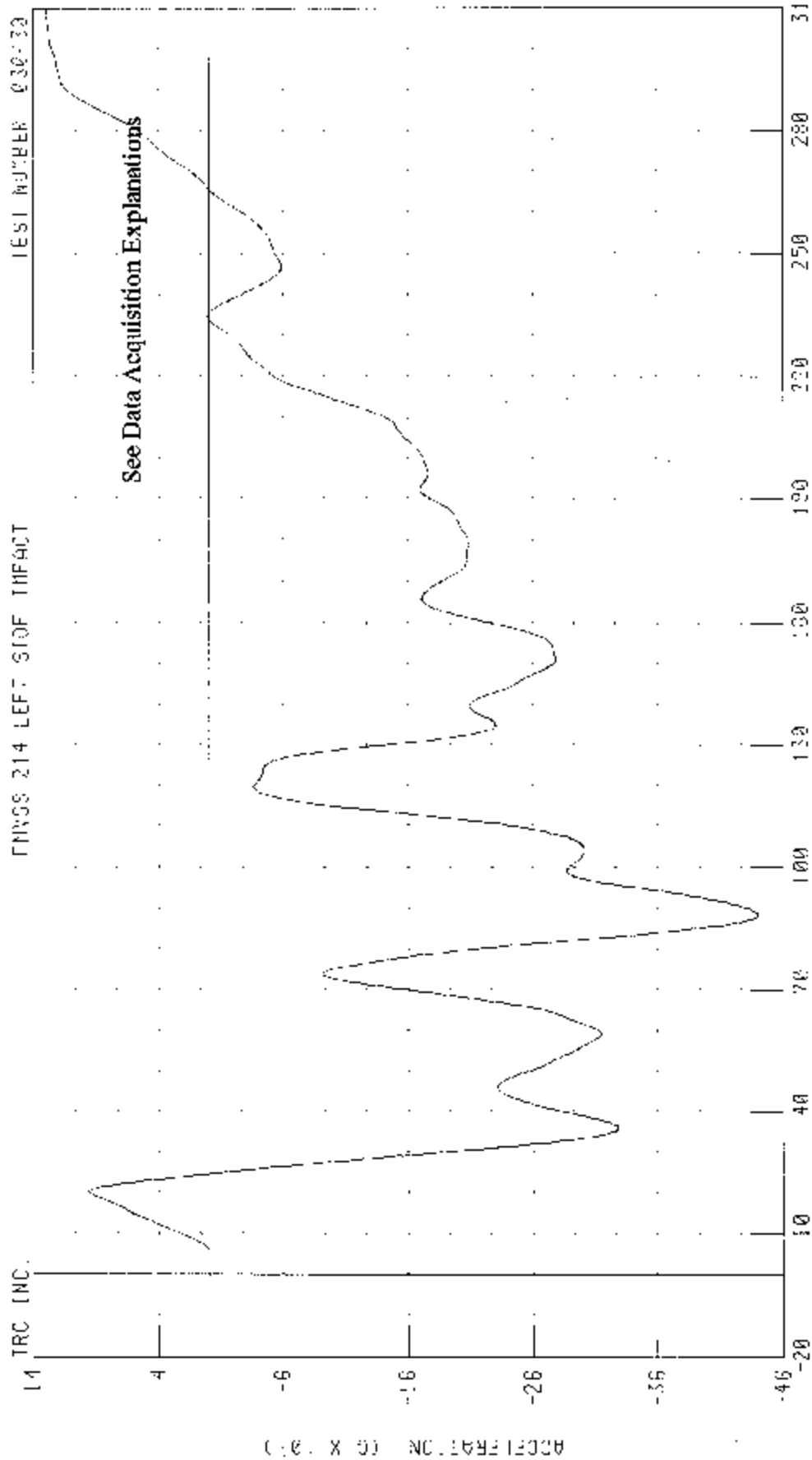
PHYS 214 0 00 XN/4 0 1 17 MS: -2 91 KF/H 2 47 92 MS

55/28 KPH 90 DEGREE SILL IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 EFW 3251

RIGHT SIDE SILL AT FRONT SEAT Y AXIS ACCELERATION

FNCS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



CHANNEL RF3Y61 FILTER: 01 CLASS 60

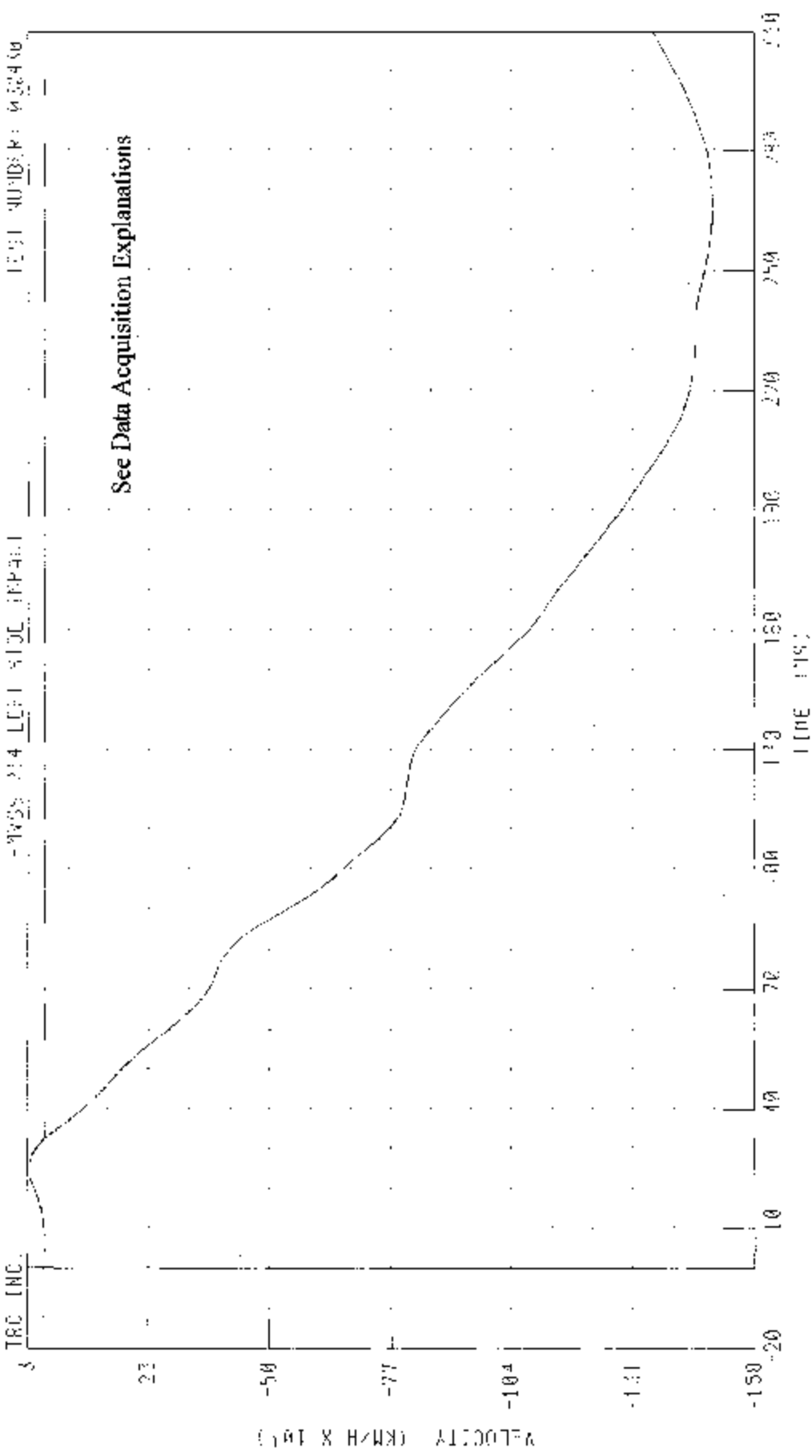
PEAK DATA 130 74 0 8 129 56 MS, -440 -10 0 8 83 10 MS

55-78 KIN 64 DEGREE SIDE IMPACT MOVING DEFORMATION PRESSURE INTO LEFT SIDE 0- 2003 PPA 3251

RIGHT SIDE SILL AT FRONT SEAT F AXIS VELOCITY

-7435 214 LEFT SIDE IMPACT TEST NUMBER: 032400

See Data Acquisition Explanations



TIME (MS)

CHANNEL: RESYST FULCR CH CLASS: 200

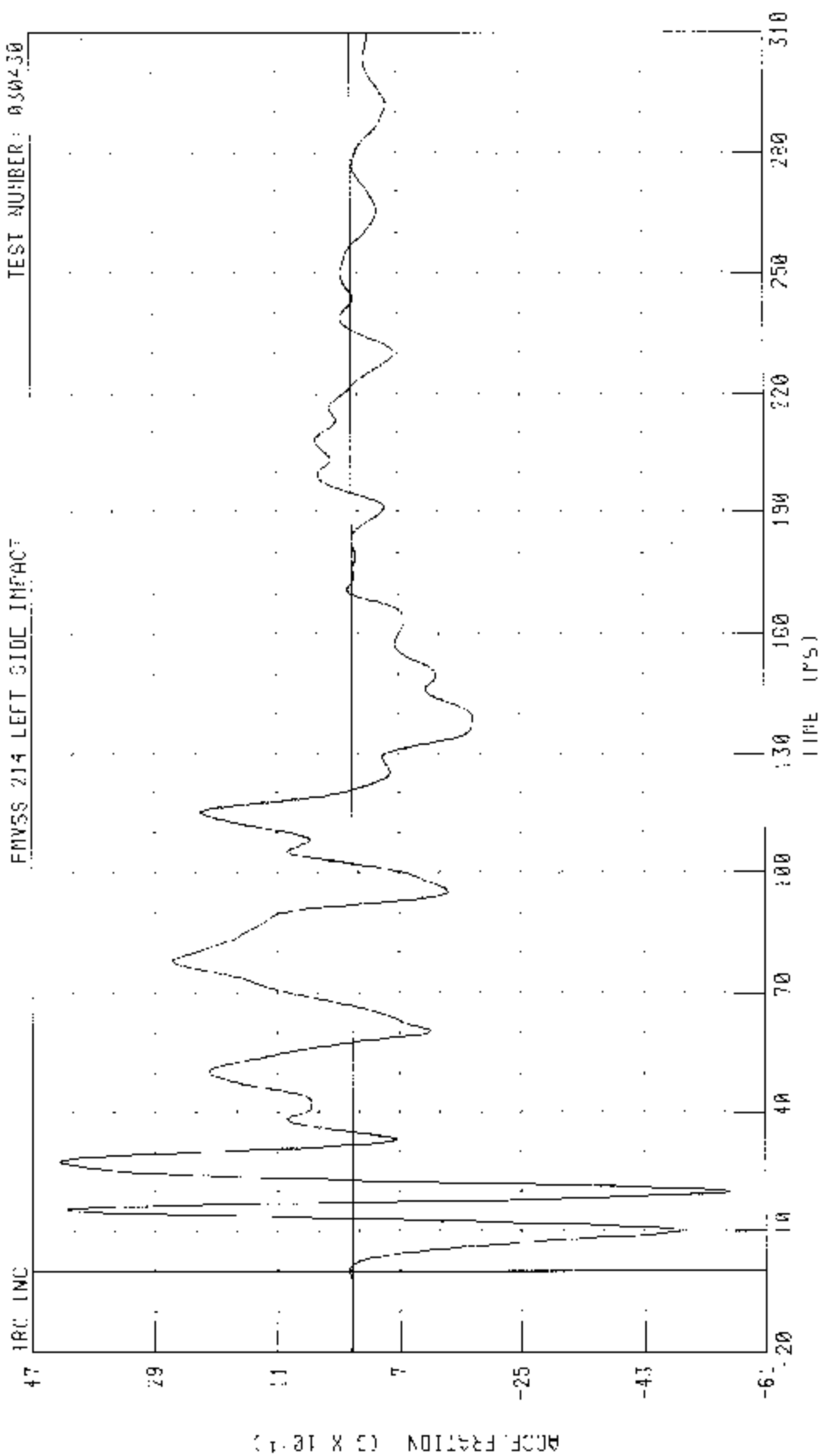
FLARE: 1410 17 85 FULCR 0 24 40 MS, -1480 00 PPA 4 0 200 00 MS

55/28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

RIGHT SIDE SILL AT FRONT SEAT 7 AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



CHANNEL RFSZC1 SILLER CH CLASS 60

PEAK DATA: 1 29 0 0 27 76 MS, -3 56 0 0 19 92 MS

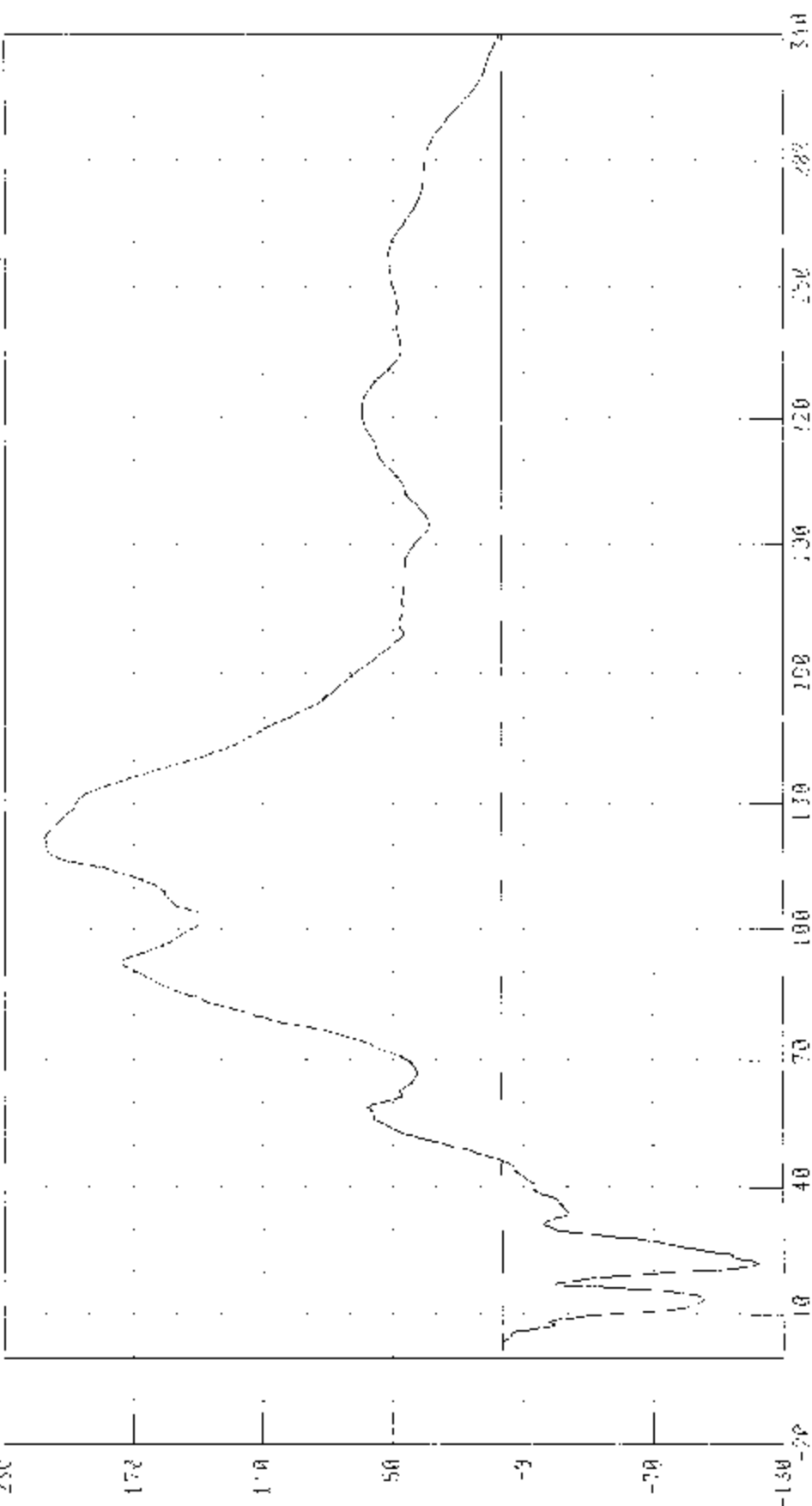
54000 KPH 9M DEGRF SURF IMPACT (MOVING OFFROADABLE BARRIER) INTO LEFT SIDE 0- 2000 R/W 60M

RIGID SIDE CURB AT FRONT SEAT Z-AXIS VELOCITY

TRC INC.

PHYS 714 LEFT SIDE IMPACT

IFS NUMBER 003430



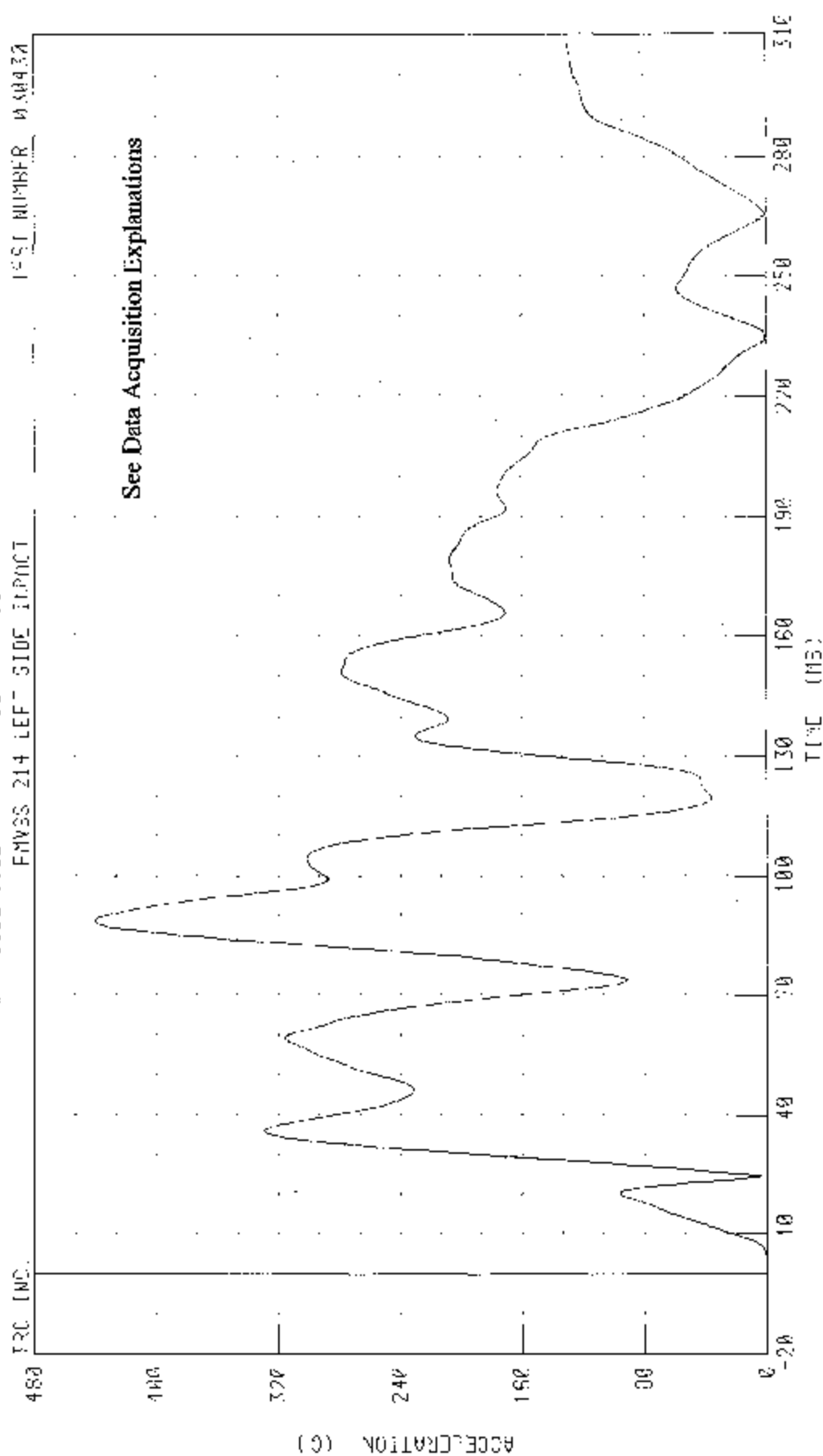
TIME (MS)

CHANNEL: R002V1 FILTER: CH. 0.000 180

BEAK DATA: 2.17 KM/H 3.101 3.213 1.10 4.00 2.22 0.00 7.0

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 GMC 325I
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

U.S. AIR FORCE



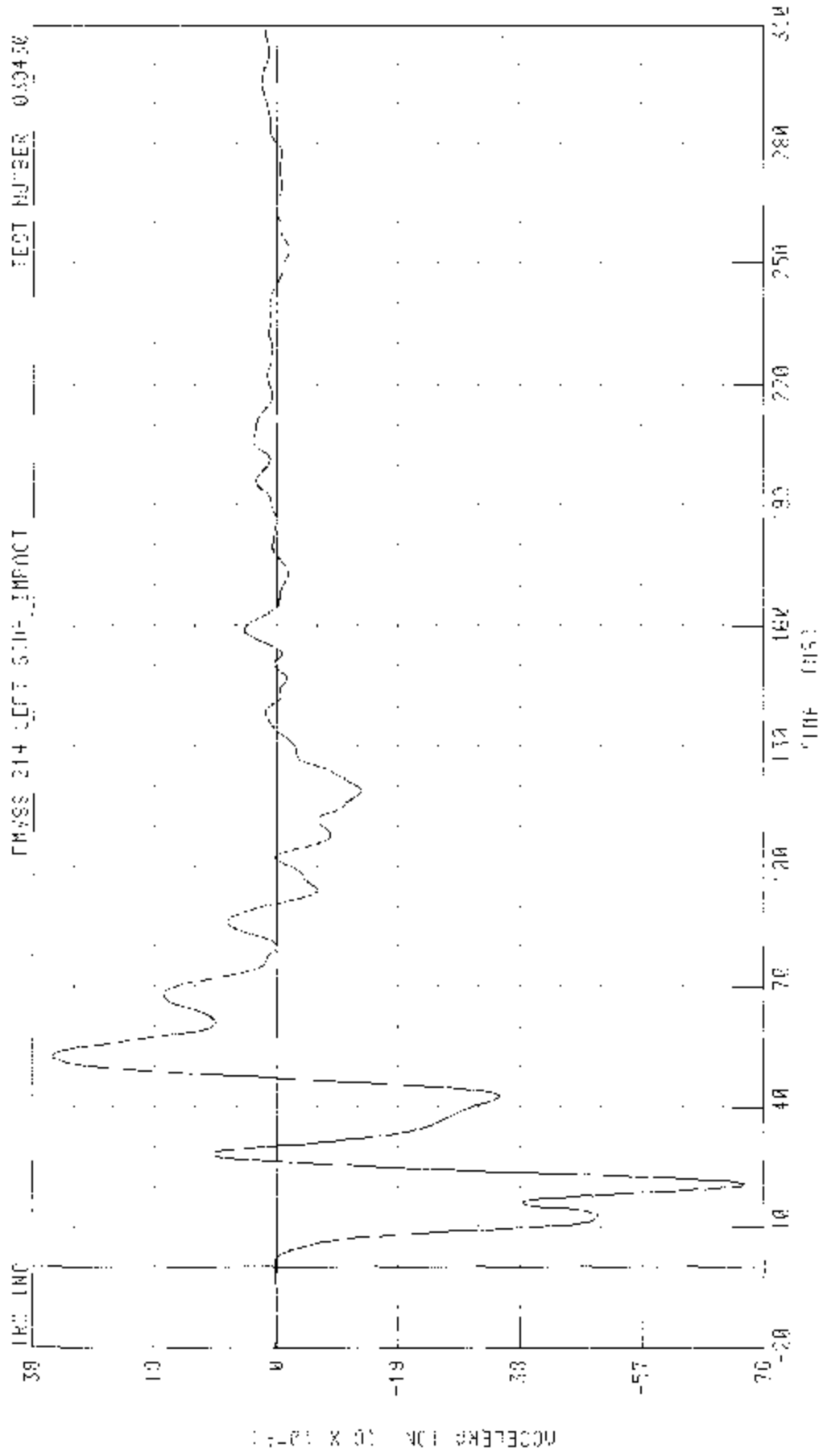
CHANNEL P-53C; FILTER: CH CLASS 152

PEAK 2070 410 20 9 84 48 15, 4 25 6 0 -19 94 13

55-23 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2093 RHW 3251

RIGHT SIDE SLIP ON PWB SEE X-0815 PHOTOGRAPH

MASS 214 LEFT SIDE IMPACT TEST NUMBER 030430



CIRCUIT BOARD FILTER SET CLASS 00

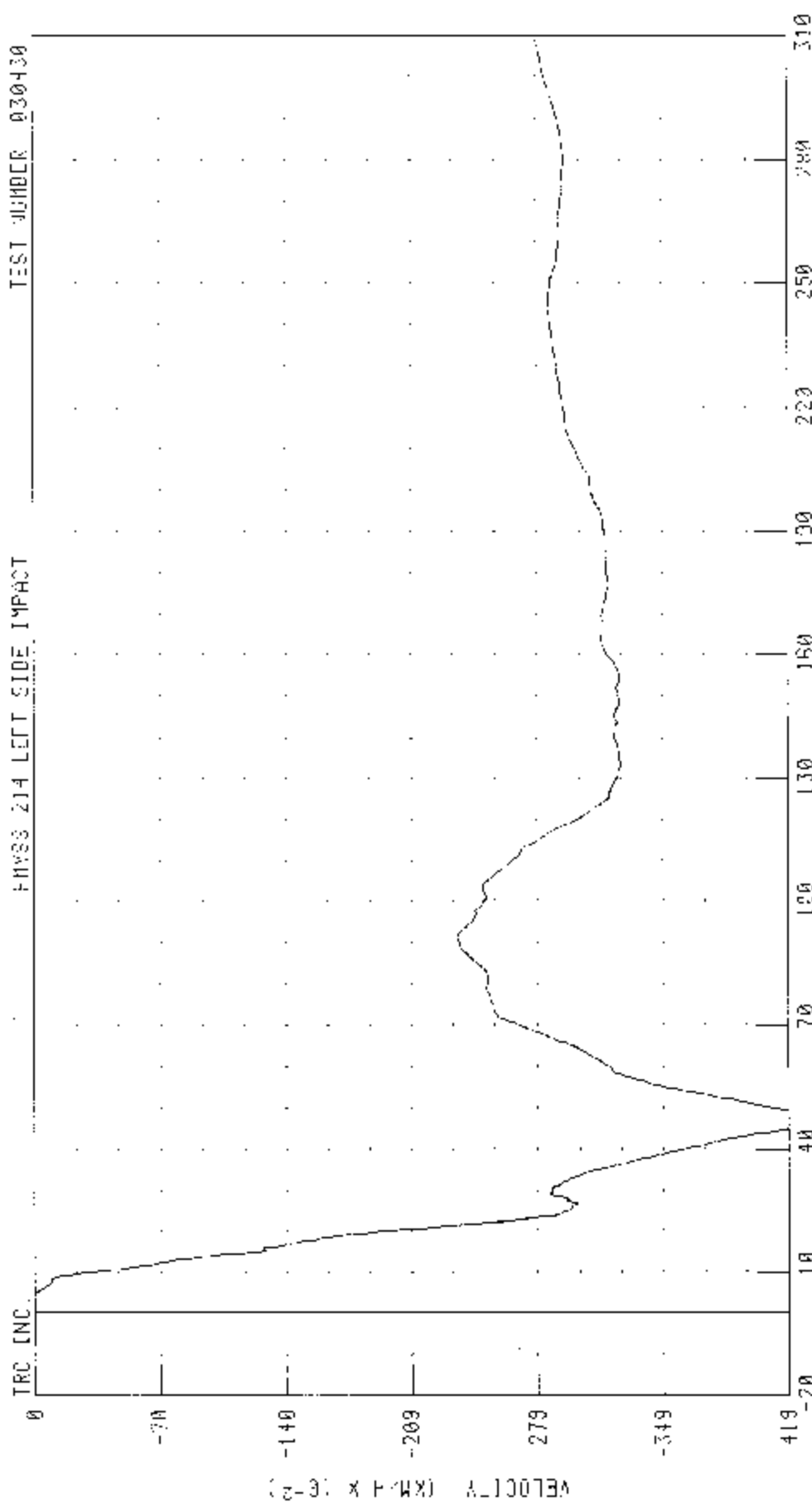
PEAK DATA: 5.45 MS 52.50 MS. 7.25 MS 20.80 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

RIGHT SIDE SILL AT REAR SEAT X-AXIS VELOCITY

TEST NUMBER 030430

INSTRUMENT 214 LEFT SIDE IMPACT



TIME (MS)

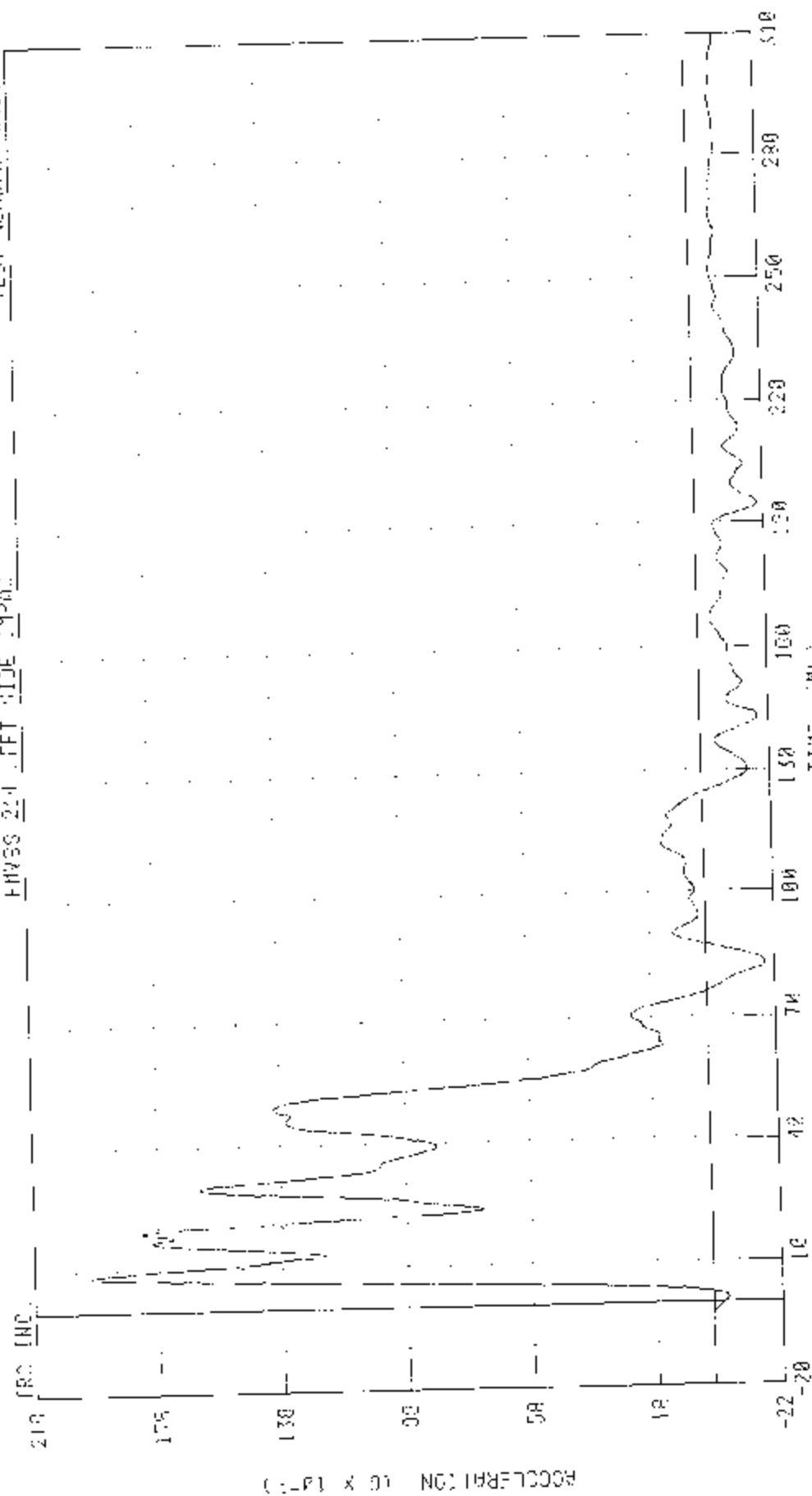
PLATE DATA: 0 20 KPH/H 0 14 MS; 0 20 KPH/H 0 47 50 15

CHANNEL: HRSXY1 FILTER: CIG, CLASS 180

55/20 MPH 92 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRELS INU LFF: SIDE OF 2203 RWD 455

RIGHT SIDE SOIL A REAR SEAT X AXIS ACCELERATION

TEST NUMBER 050150



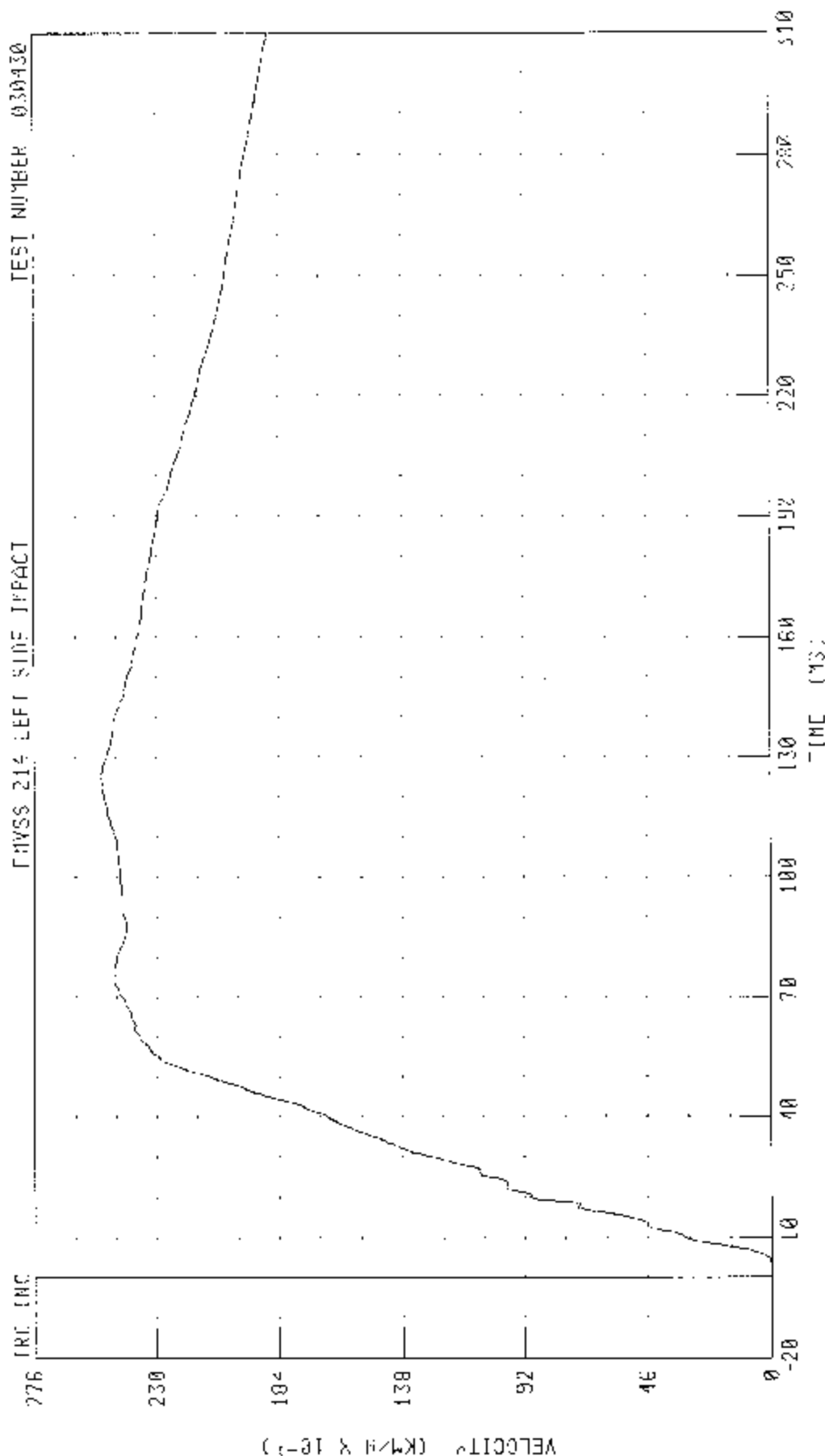
TIME (MS)

PLAY DATA 13 98 0 0 3 48 MS: 01 0 3 104 72 MS

C-NAME F95Y51 FILTER CH CLOSE 00

55.78 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 R/V 3251

RIGHT SIDE SIL AT REAR SEAT Y-AXIS VELOCITY

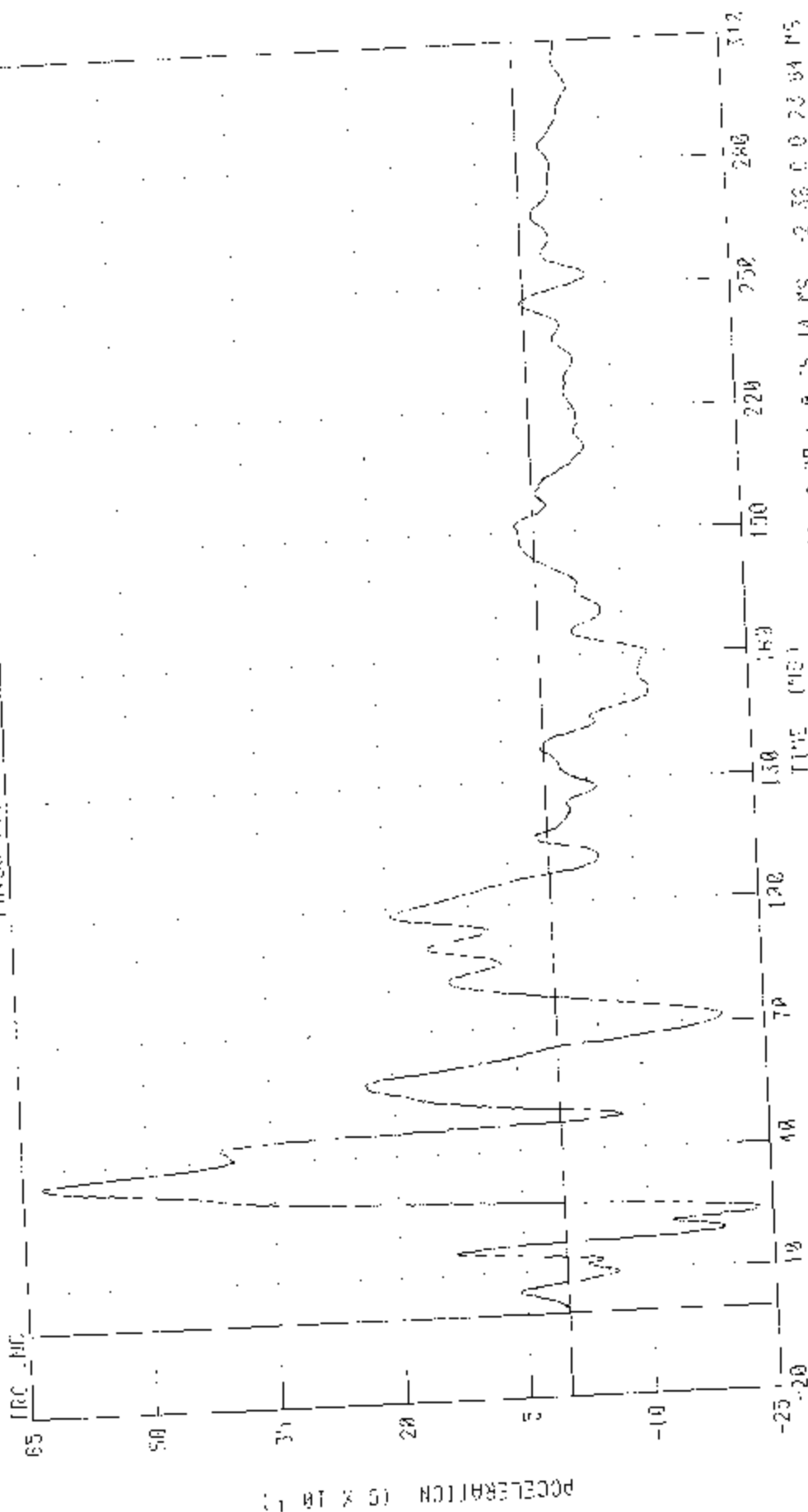


35770 KPH 90 DEGREE SIDE IMPACT (MOVING OFFBOARDER PASSENGER) INTO LEFT SIDE OF 2003 CFM 3251

RIGHT SIDE SILENCE OF PASSENGER SEAT 2-3M13 ACCELERATION

1251 H000F0 030410

PROGS 214 LEFT SIDE IMAC



CHANNEL RES201 FILTER OF CLASS 60

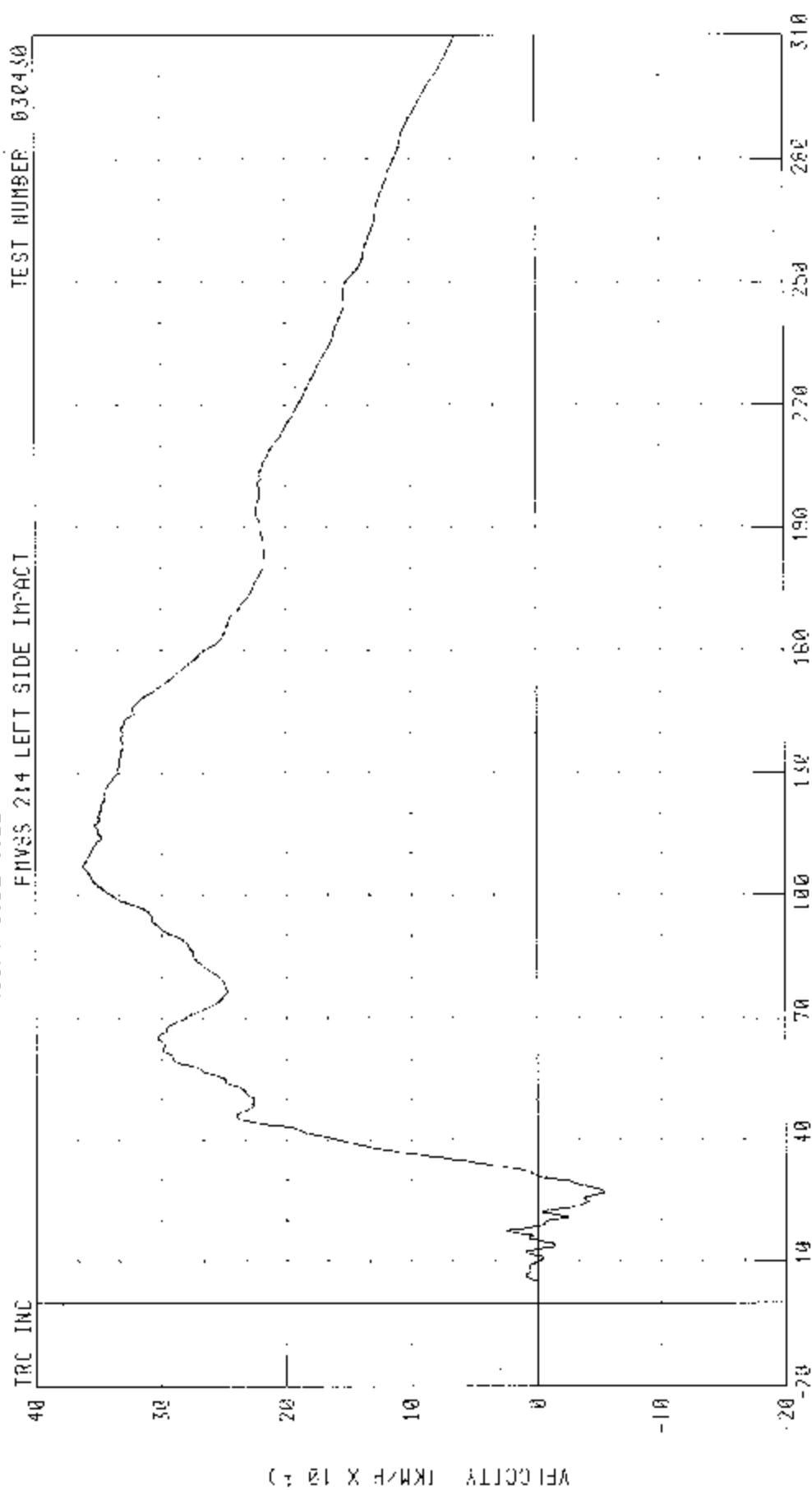
030430

55/28 200 90 DEGREE SLOPE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SLOPE OF 2003 BMW 325i

RIGHT SIDE SILL AT REAR SEAT Z-AXIS VELOCITY

TEST NUMBER 030430

FMVS 214 LEFT SIDE IMPACT



CHANNEL: KPS291 FILTER CH. CLASS 130

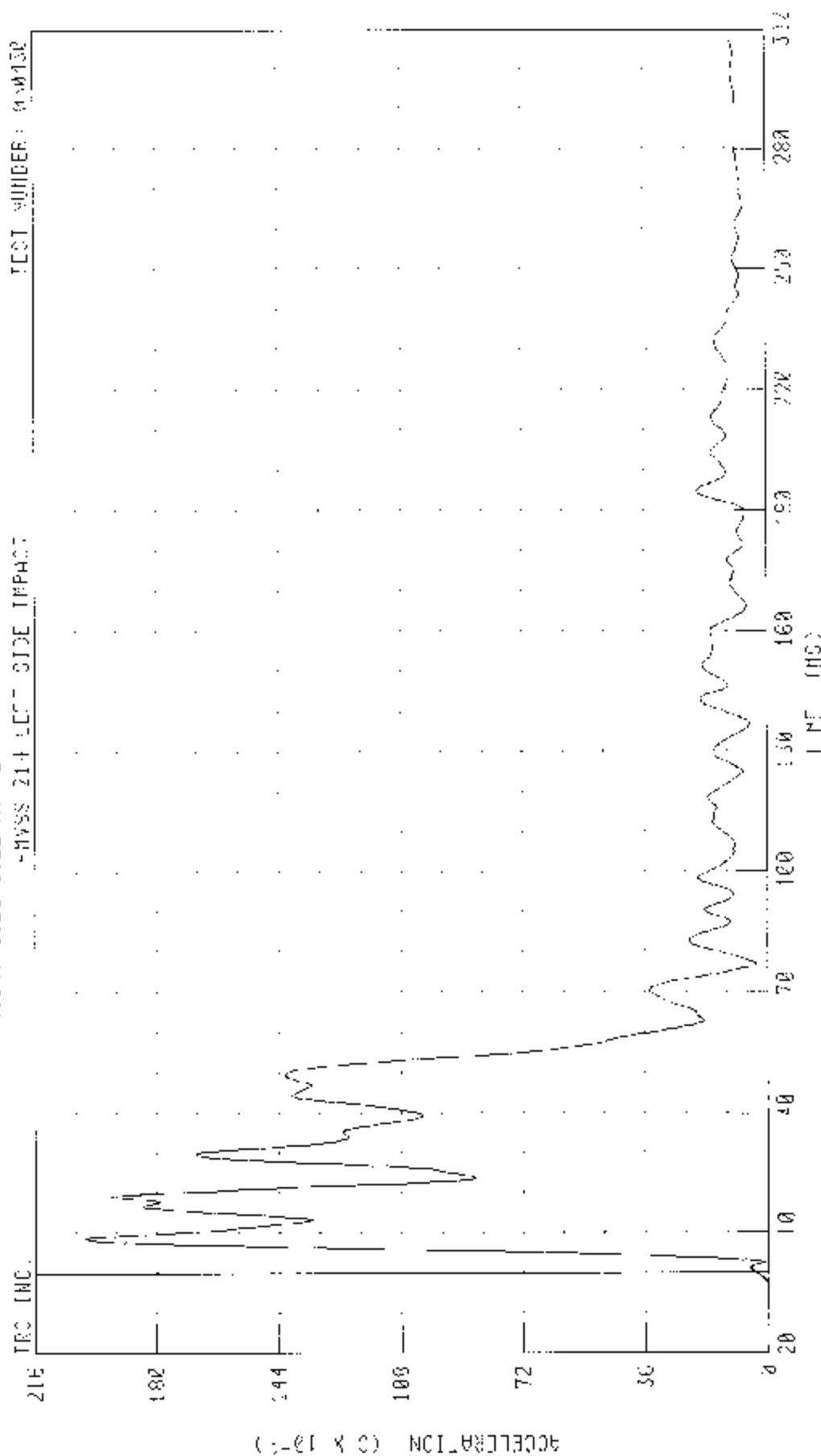
PEAK DATA 1 6.2 KPH @ 137.04 MS, -0.53 KPH @ 27.12 MS

55/20 KPI 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO FET 500F OF 2003 BMW 325I

RIGHT SIDE SILL AT REAR SEAT HEAD REST (ANT ACCELERATION)

-MASS 214 LEFT SIDE IMPACT

TEST NUMBER: 000130



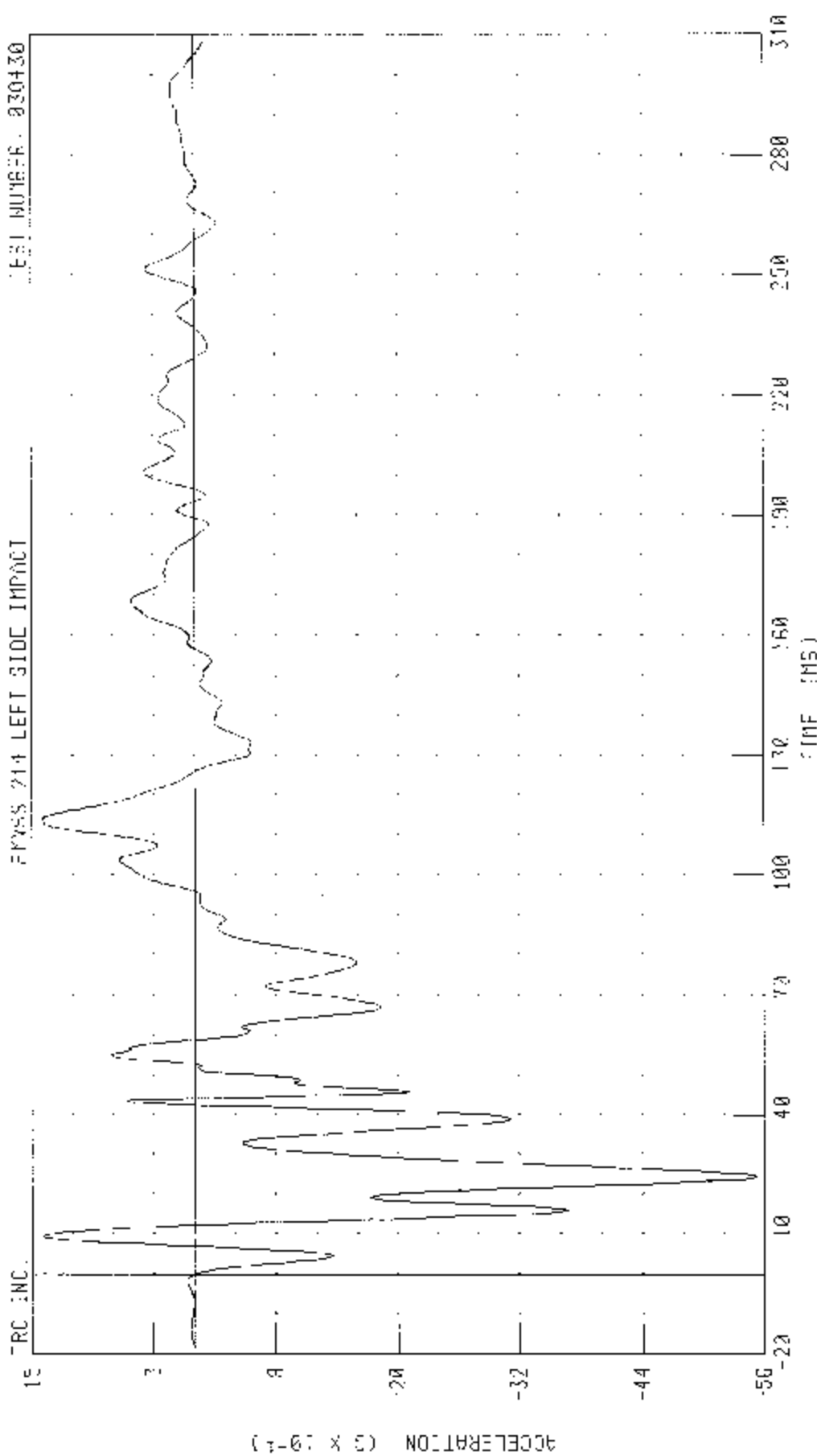
PEAK DATA 20 12 3 0 40 MS, 4.00 3 0 17.95 MS

55/28 KPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 BMW 325i

REAR FLOORPAN ABOVE AXLE X-AXIS ACCELERATION

TEST NUMBER: 030430

SPYSS 214 LEFT SIDE IMPACT



CHANNEL: RDX01 FILTER: CUI CLASS: BR

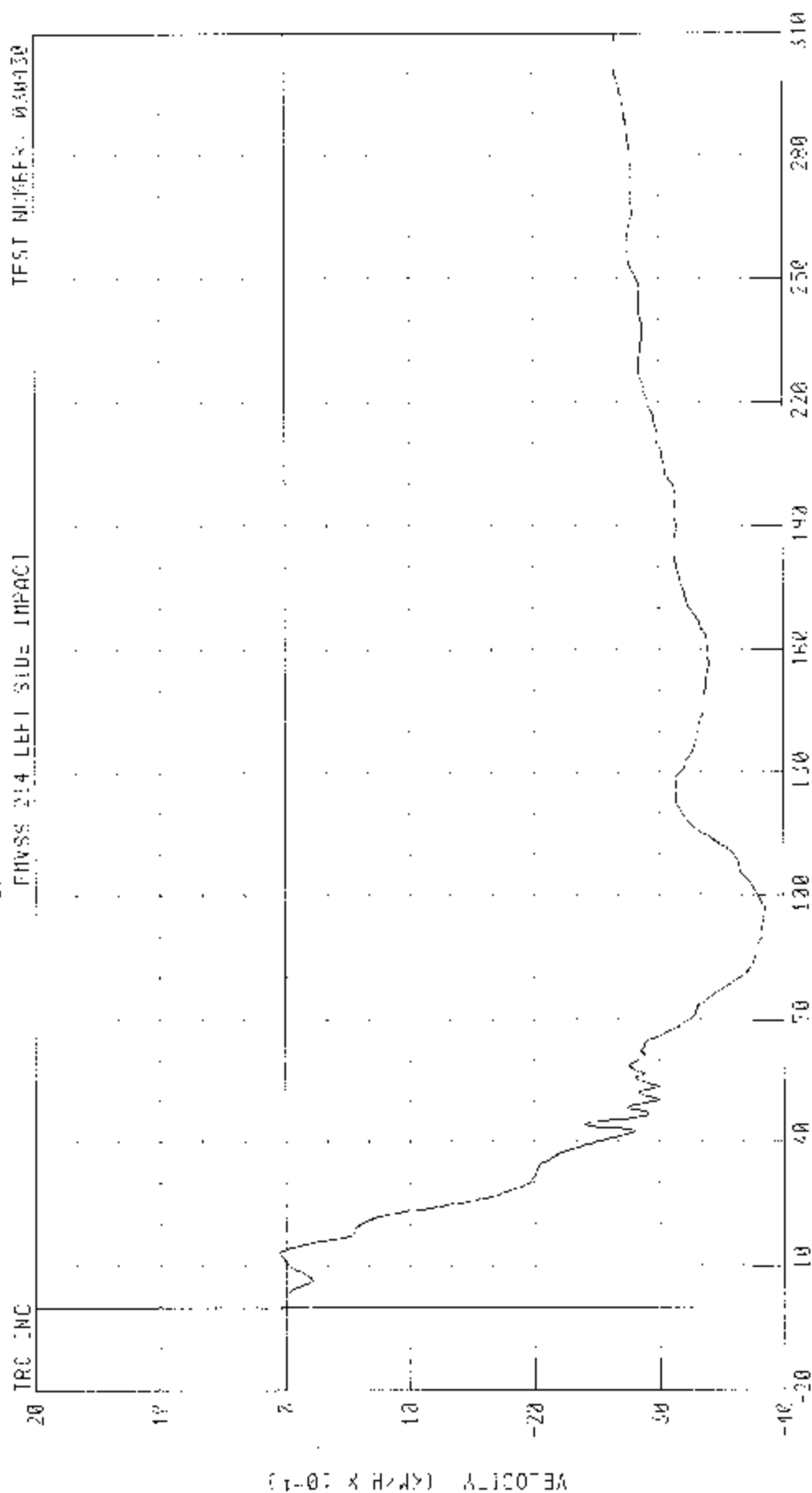
PEAK DATA: 15' G @ 113.24 MS, -5.53 G @ 24.16 MS

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFUSIBLE BARRIER) INTO LEFT SIDE OF 2003 DFW 3251

REAR FLOORPAN ABOVE AXLE X AXIS VELOCITY

TEST NUMBER: 0000130

FWSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: REAR: FILTER: CL: CROSS: 100

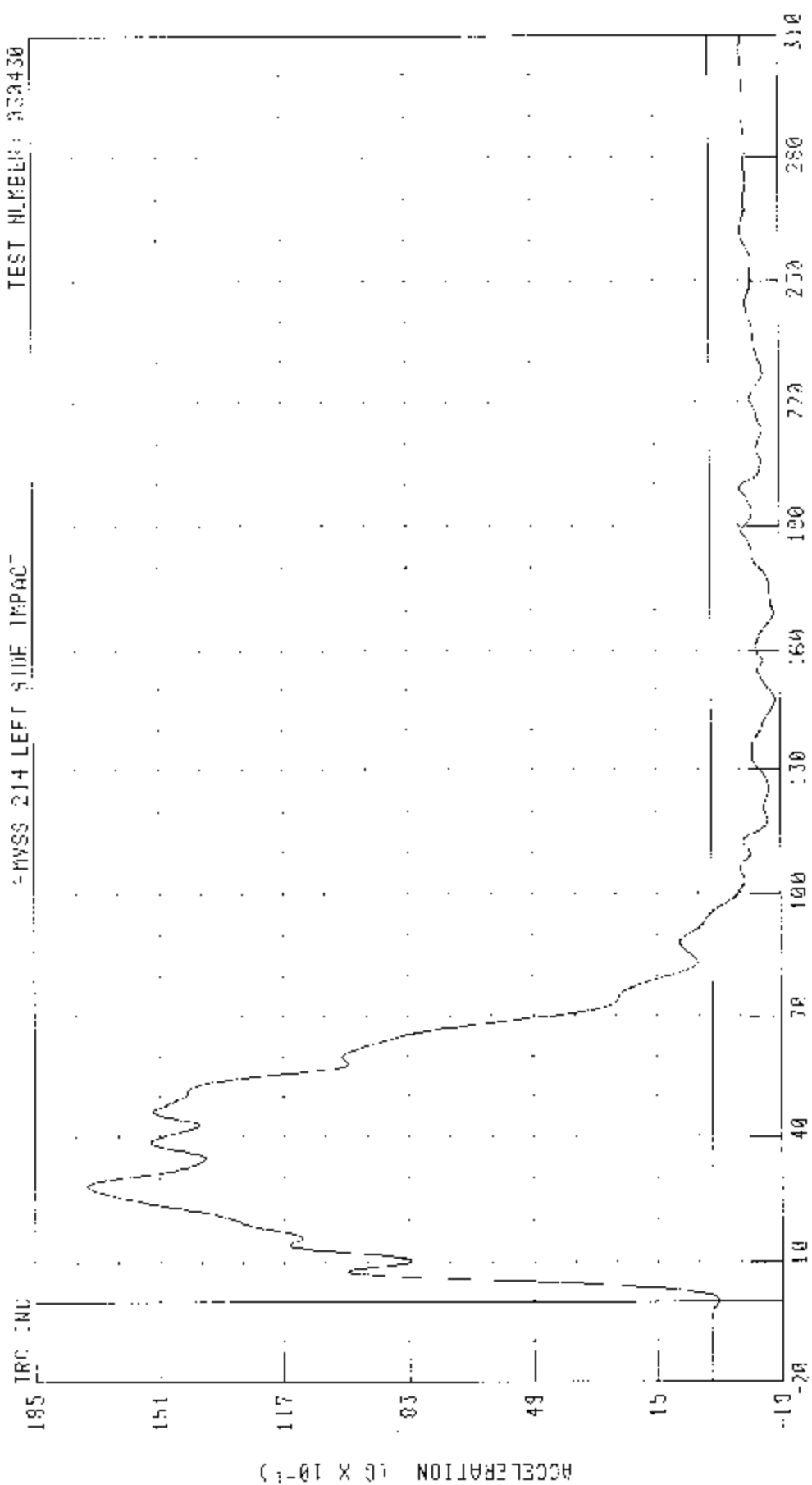
PEAK DATA: 0.05 KPH: 0.13 30 MS: -3.85 KPH: 4.84 30 MS

55.20 MPH 90 DEGREE SID- IMPACT (MOVING DEFORMER BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

REAR FLOORPAN ABOVE AXLE V-4X15 ACCELERATION

TEST NUMBER: 030430

-HYSS 214 LEFT SIDE IMPACT



CHANNEL: RUCY61 FILTER: CH CLASS: 60

TEST DATE: 17 DEC 00 20 00 MS. -1 75 0 @ 147 33 MS

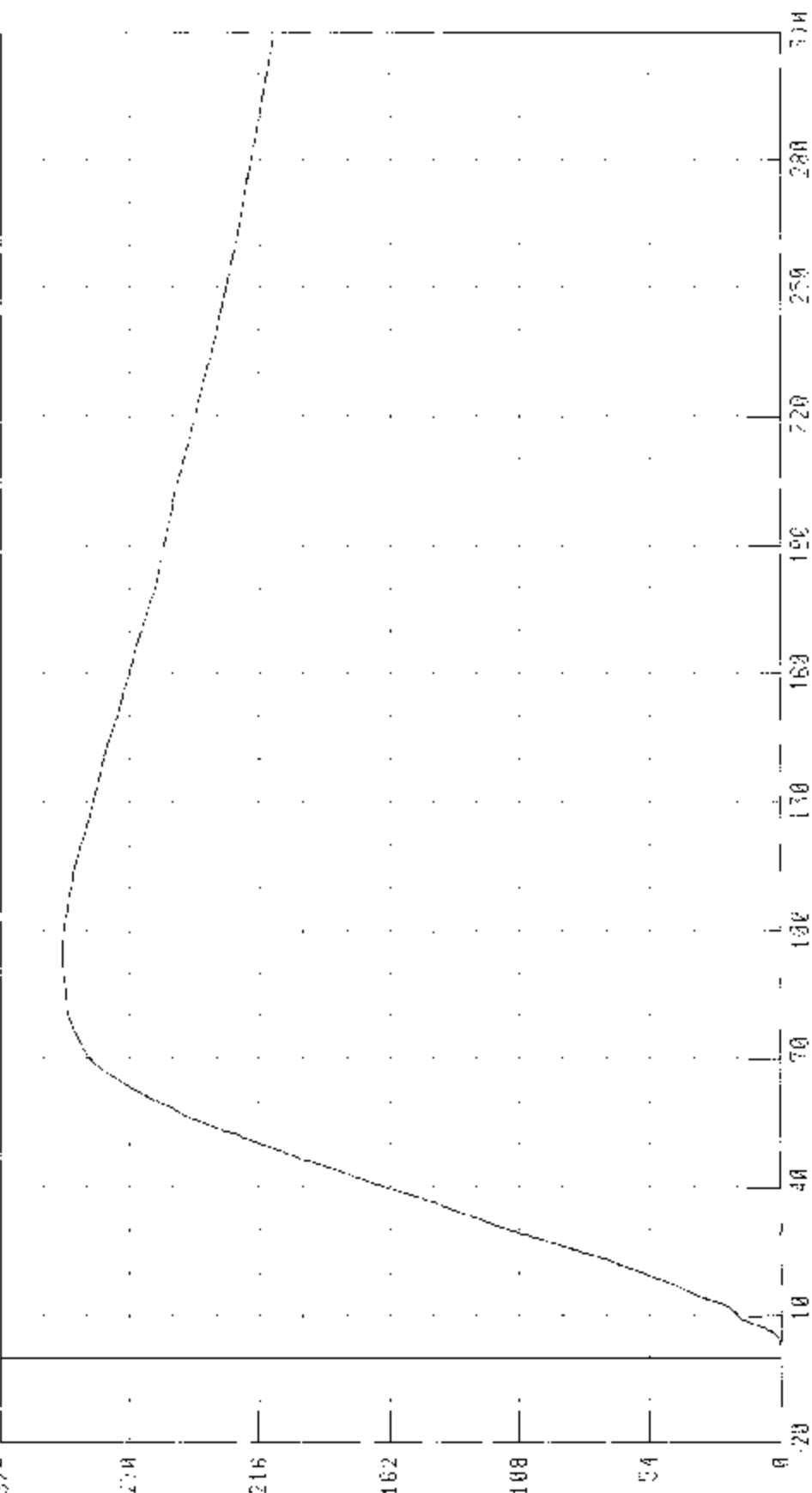
55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325I

REAR FLUOROPAN ABSORBER AXLE Y-POS VELOCITY

TEST NUMBER 032430

FMVSS 214 LEFT SIDE IMPACT

IRC INC.



TIME (MS)

CHANNEL R0KYV1 FILTER OF CLASS 180

OFNK D01P- 29 85 MPH W 98 88 L 1 9 83 ZMCH 0 0 20 MS

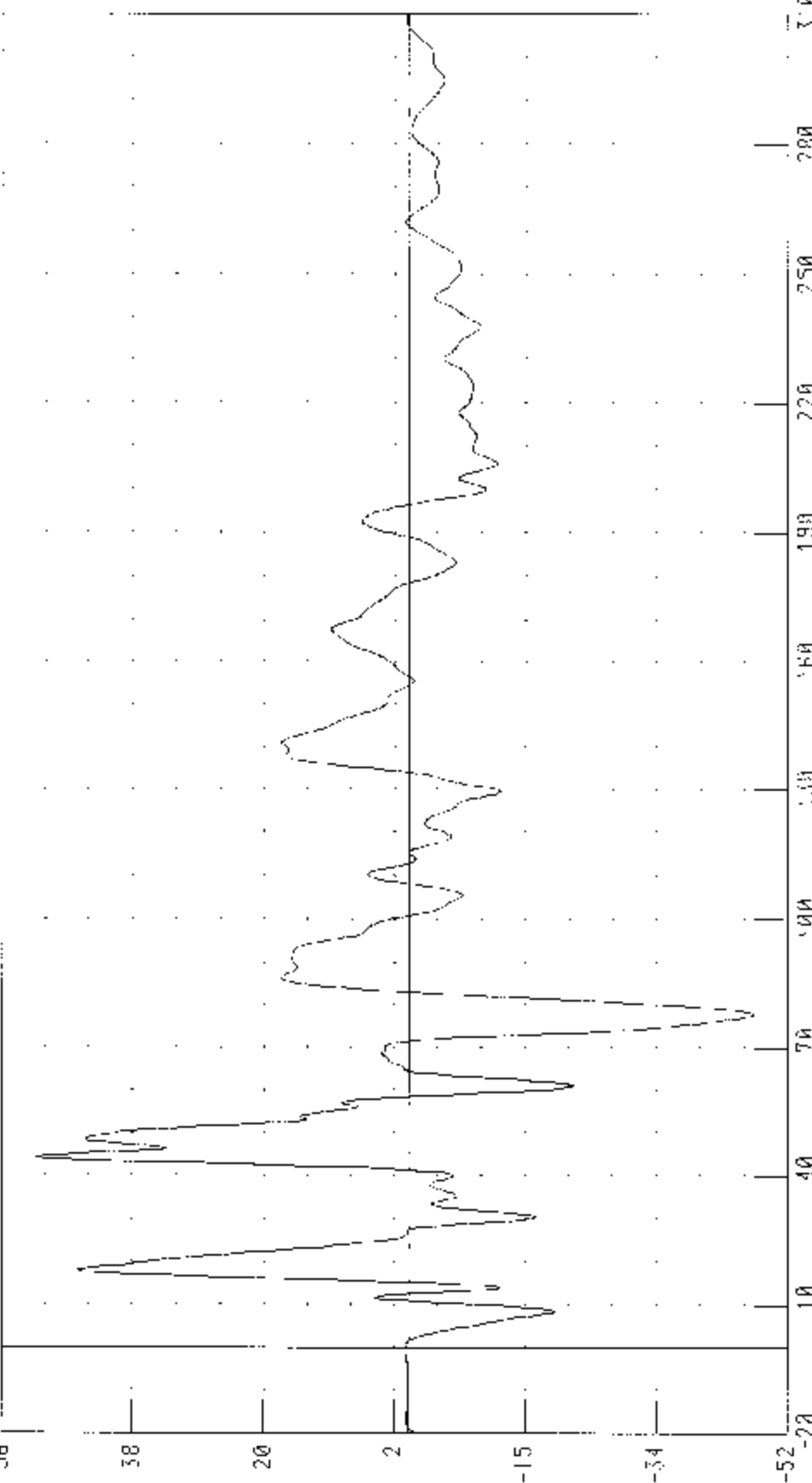
55/20 (P4 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i)

REAR FLOORPAN ABOVE AXLE Z-AXIS ACCELERATION

PHYSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430

TRC INC.



ACCELERATION (G x 10⁴)

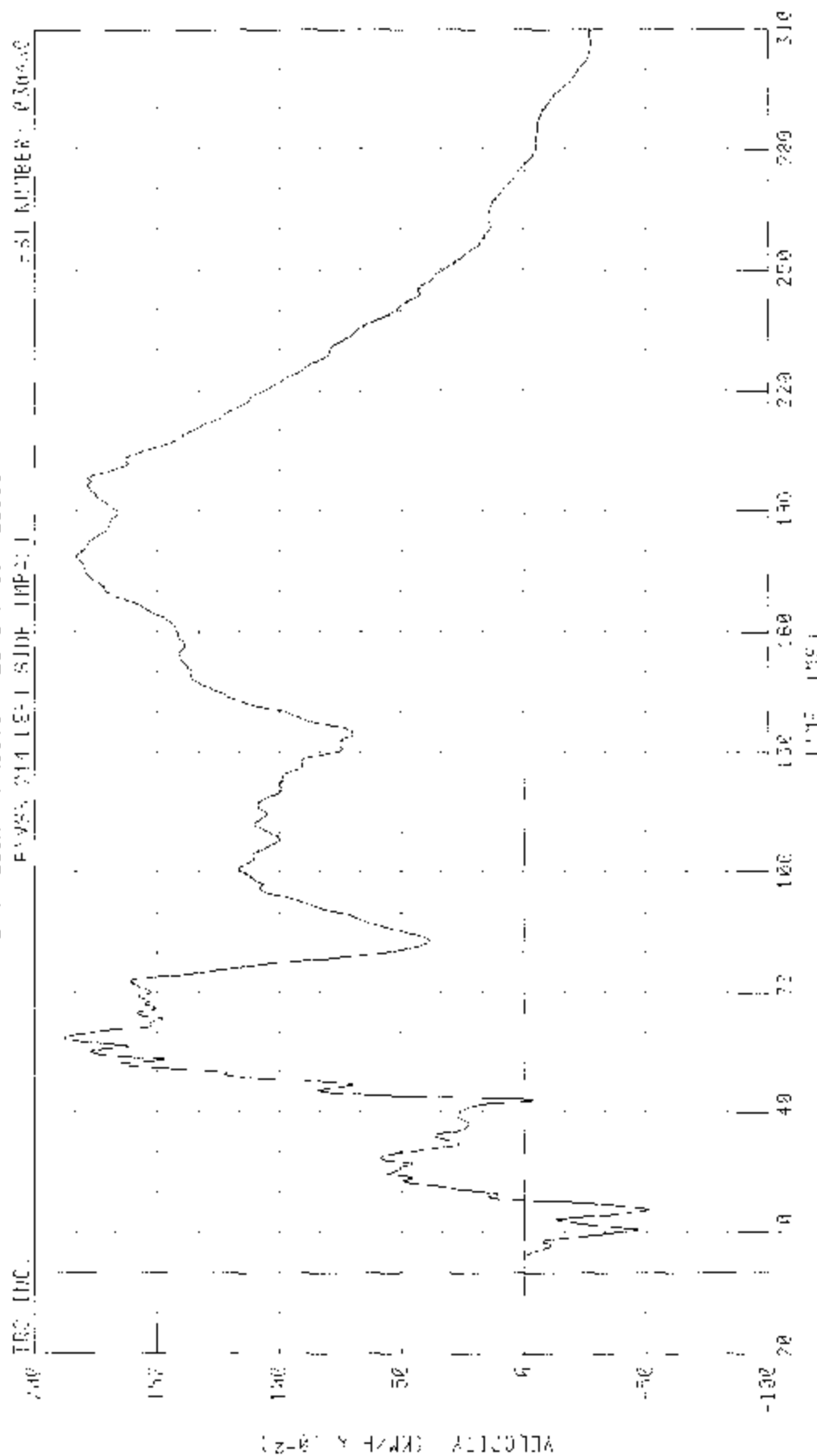
TIME (MS)

CHANNEL R0K701 FILTER CH CLASS ER

PEAK DATA 5.17 G @ 46.10 MS, 4.73 G @ 78.00 MS

56-25 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325I

REAR FLOORPAN ABOVE AXLE Z-AXIS VELOCITY



VELOCITY (KPH X 10-2)

CHANNEL: 20K791 FILTER: 0.100 100

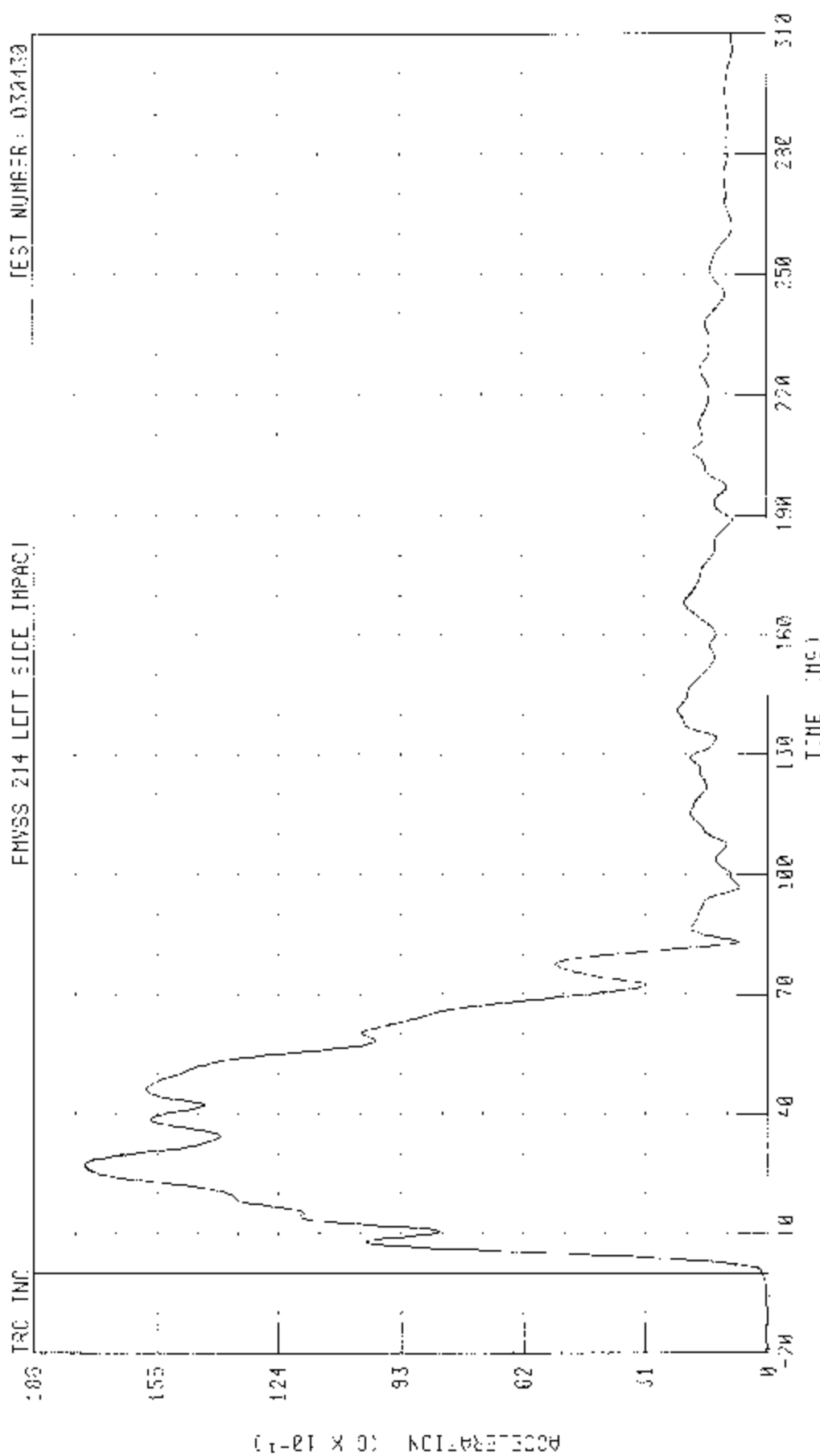
REF: DATA 1 95 01-18 52 38 115; -0 51 01 13 92 95

55/20 KPI 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

BLOR - LORIAN ABOVE AXLE RESULTANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 032430



CHANNEL 30KRC1 FILTER: CF CLASS 60

PEAK DATA 17 32 20 27 60 MS. 9 43 0 0 -18 48 45

55/20 KPH 00 DEGREE 5.25 IMPACT CRYSTAL DEFORMER - HAPPERT INFO LEFT SIDE 00- 2003 EFW 2751

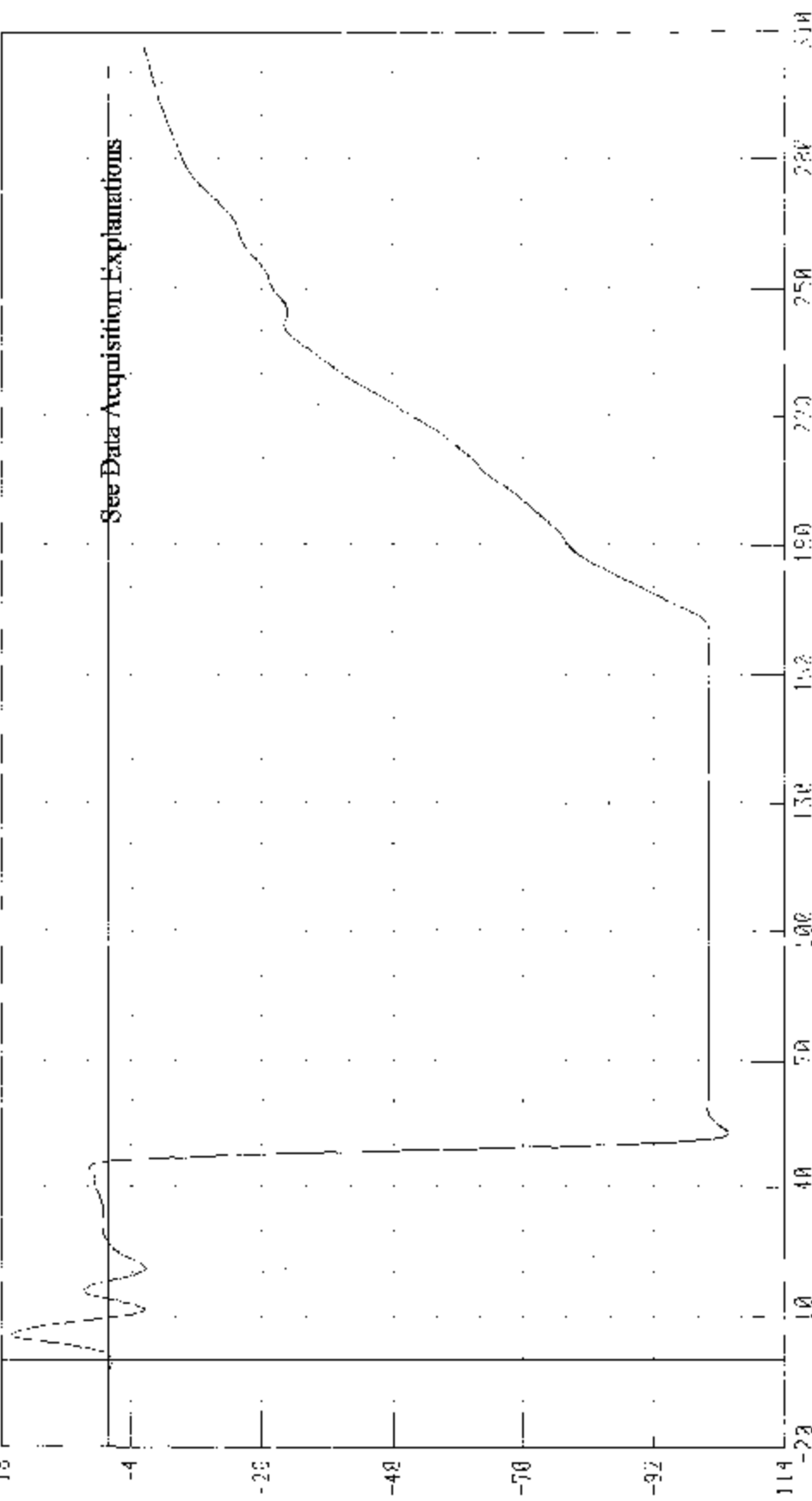
LEFT SIDE STILL ON FRONT SIDE TRACKS COLLIDER 1100

TEST NUMBER 275172

TRC INC

PROSS 214 LEFT SIDE 10000

TEST NUMBER 275172



CHANNEL: 1 PSY-1 PLT E-01 CLE-00

TIME

PEAK 0414 - 164 70 0 0 0 70 16 -1045.50 0 0 02 00 05

55/78 KPH 90 DEGREE SILL IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BAY 5251

LEFT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY

IRL INC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430

See Data Acquisition Explanations

VELOCITY (KPH X 10⁻³)

TIME (MS)

CHANNEL: LGVW0 FILTER: CH CLASS: 180

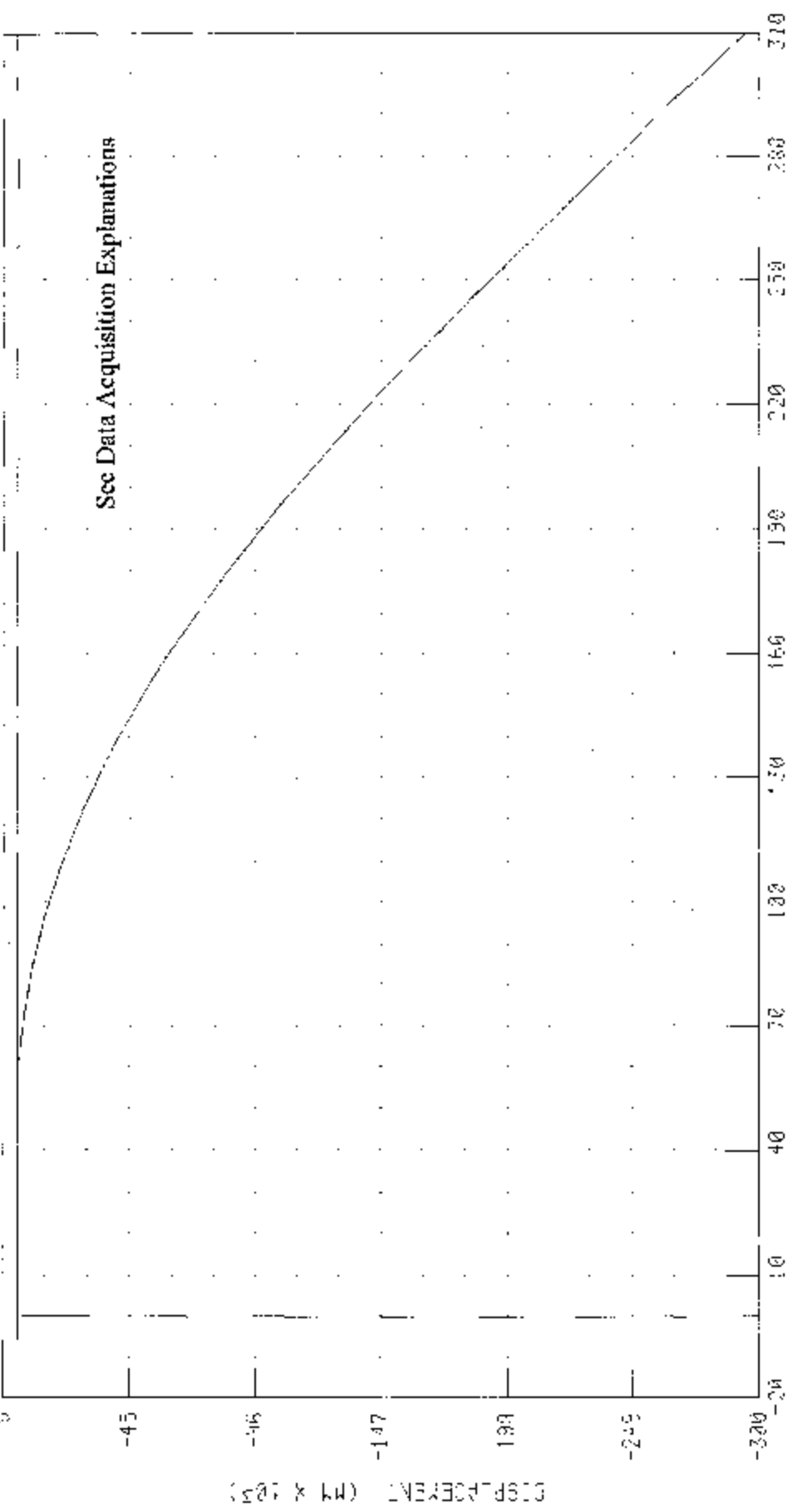
PLT: 2014 20 39 CH: 2 3 78 MS, -8740 AN KN: 0 310 20 110

55/23 MPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2004 SUV 3251

LEFT SIDE SILL AT FRONT SEAT Y-AXIS DISPLACEMENT

PHYSO 214 LEFT SIDE IMPACT

TEST NUMBER 030430



See Data Acquisition Explanations

TIME (ms)

DATA 230.42 MPH @ 49.23 MS -230737.50 mm @ 310.00 MS

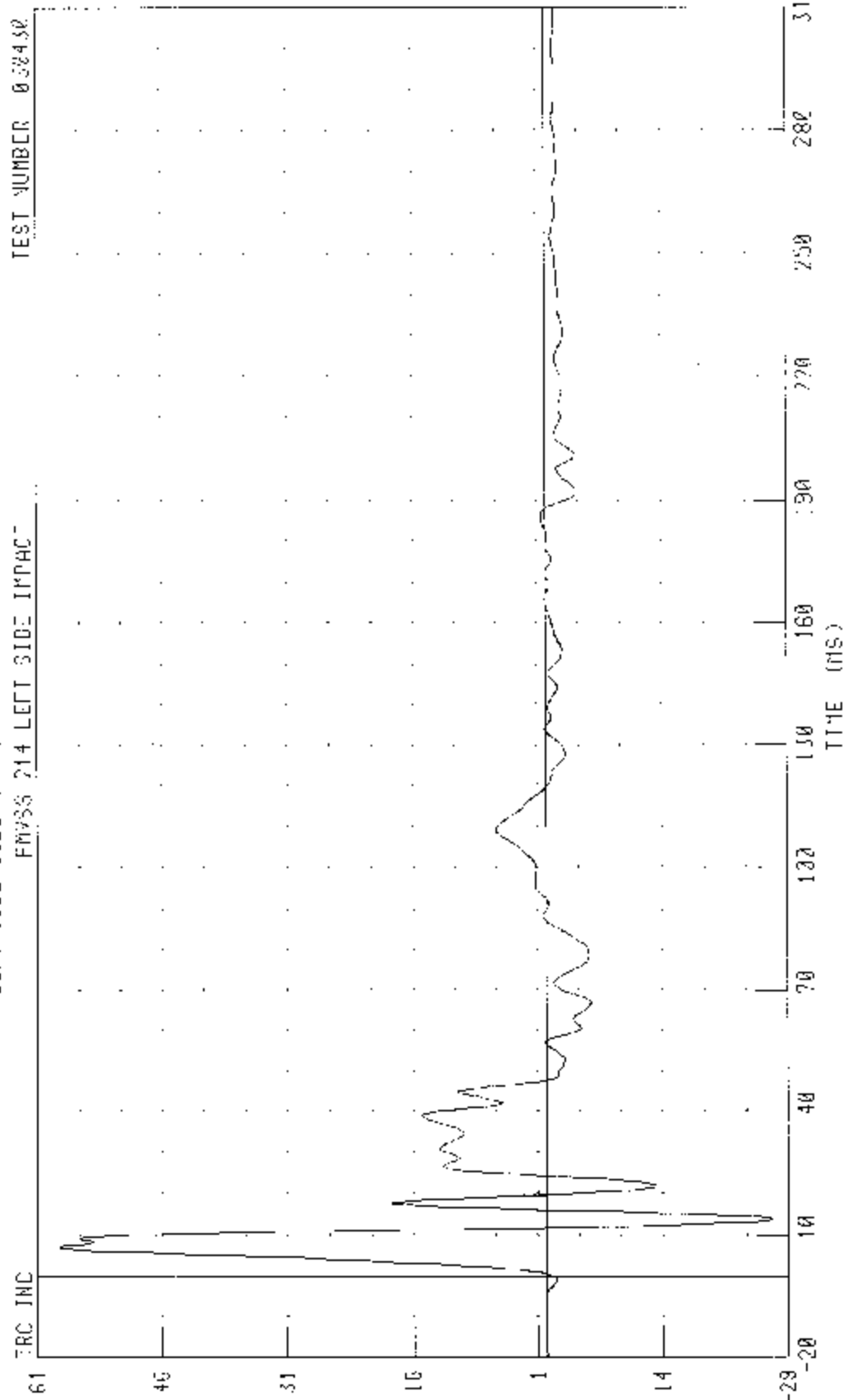
CHANNEL 1 CMV1 - FILTER ON, CLAMP 100

55/23 KP4 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF TRUCK B/W 325

LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT



CHANNEL: LRSYG1 FILTER: C CLASS: C0

PCW DATE: 58 55 3 4 6.96 MS 27 17 0 0 13 92 MS

ACCELERATION (G)

B-110

030430

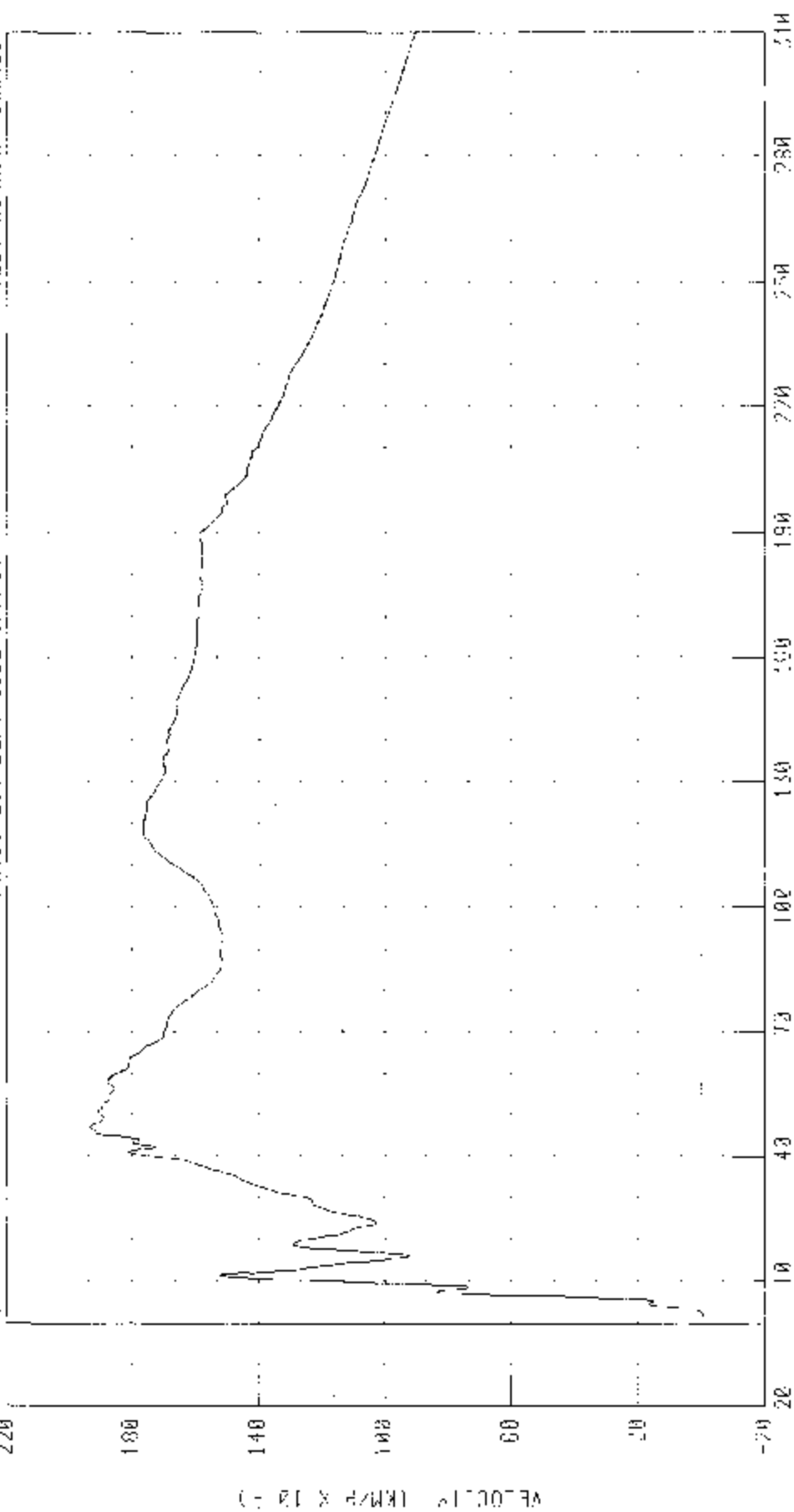
05/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INFO LEFT SIDE OF 2003 DMV 6251

LEFT SIDE SILL AT REAR SEAT Y AXIS VELOCITY

IRI, INC.

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

CHANNEL LRSYVI FILTER CH. CLASS 180

PEAK 0110 13 39 KPH @ 47.22 MS, 0.05 KPH/1 @ 2.52 MS

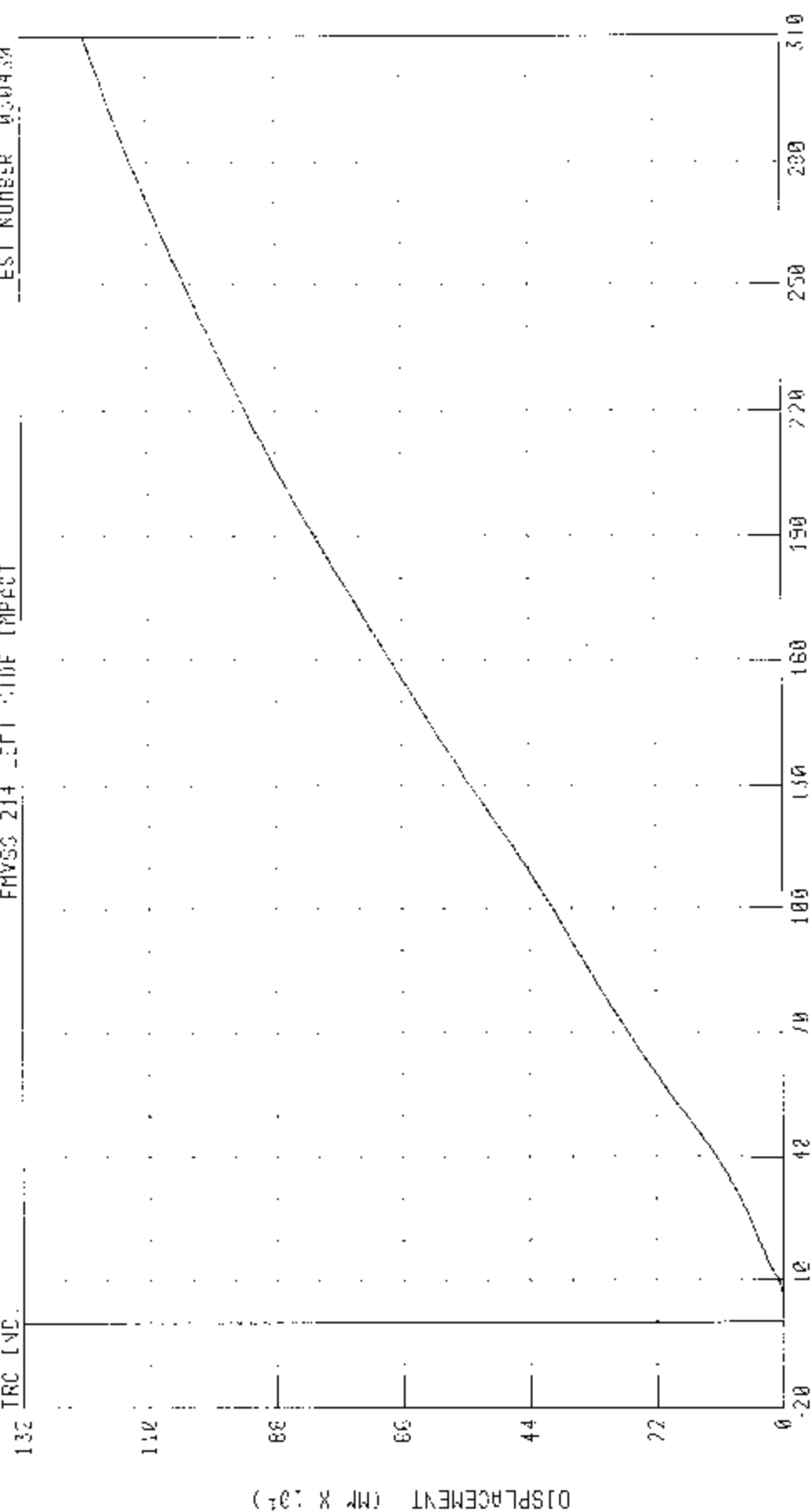
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT SIDE SILL AT REAR SEAT Y AXIS DISPLACEMENT

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

TRC END



TIME (MS)

CHANNEL LRSYD1 FILTER CH CLASS 190

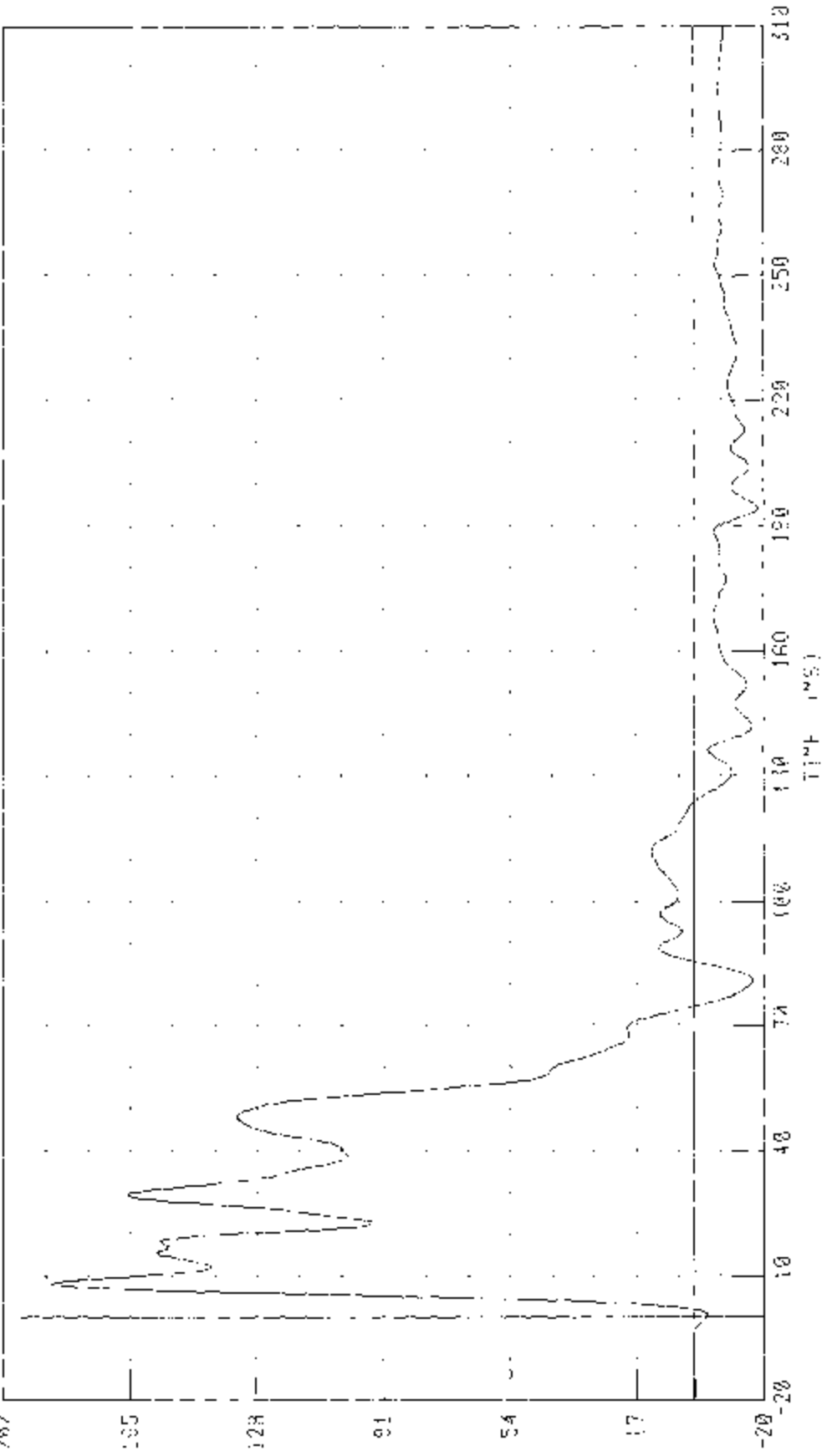
PEAK DATE: 1208 29 MM @ 510 20 10, -0 21 14 @ 2 82 13

55/28 62-90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i
 RIGHT REAR OCCUPANT COMPARTMENT Y AXIS ACCELERATION

TEST NUMBER: P3M430

FWSS 214 LEFT SIDE IMPACT

RC INC



CHANNEL BRT-001 FILTER CH CLASS 60 TIME (MS) PLOT DATA 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

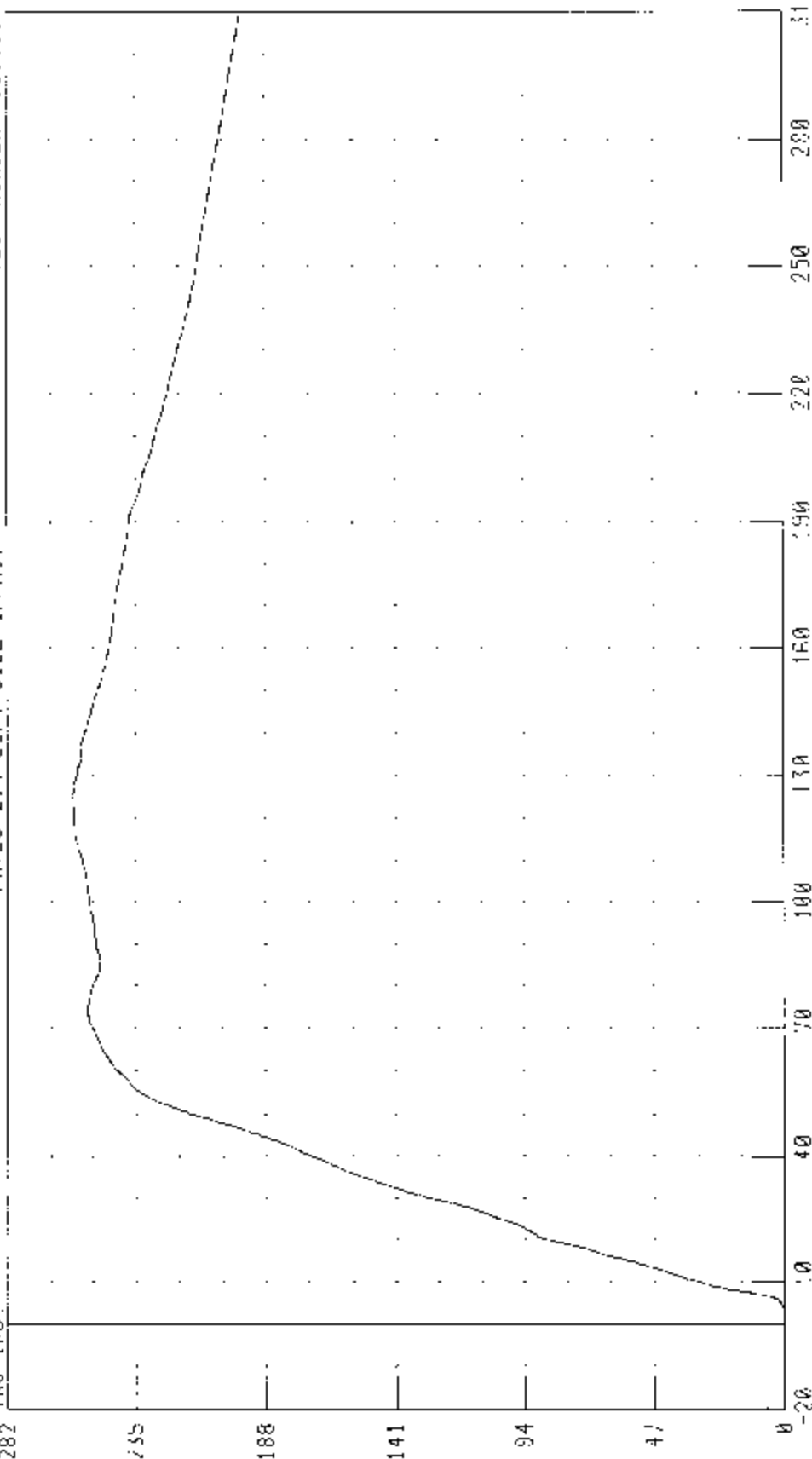
55/78 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER: INIT LEFT SIDE OF 2003 ENH 3251

RIGHT REAR OCCUPANT COMPARTMENT X-AXIS VELOCITY

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

TRC (AC)



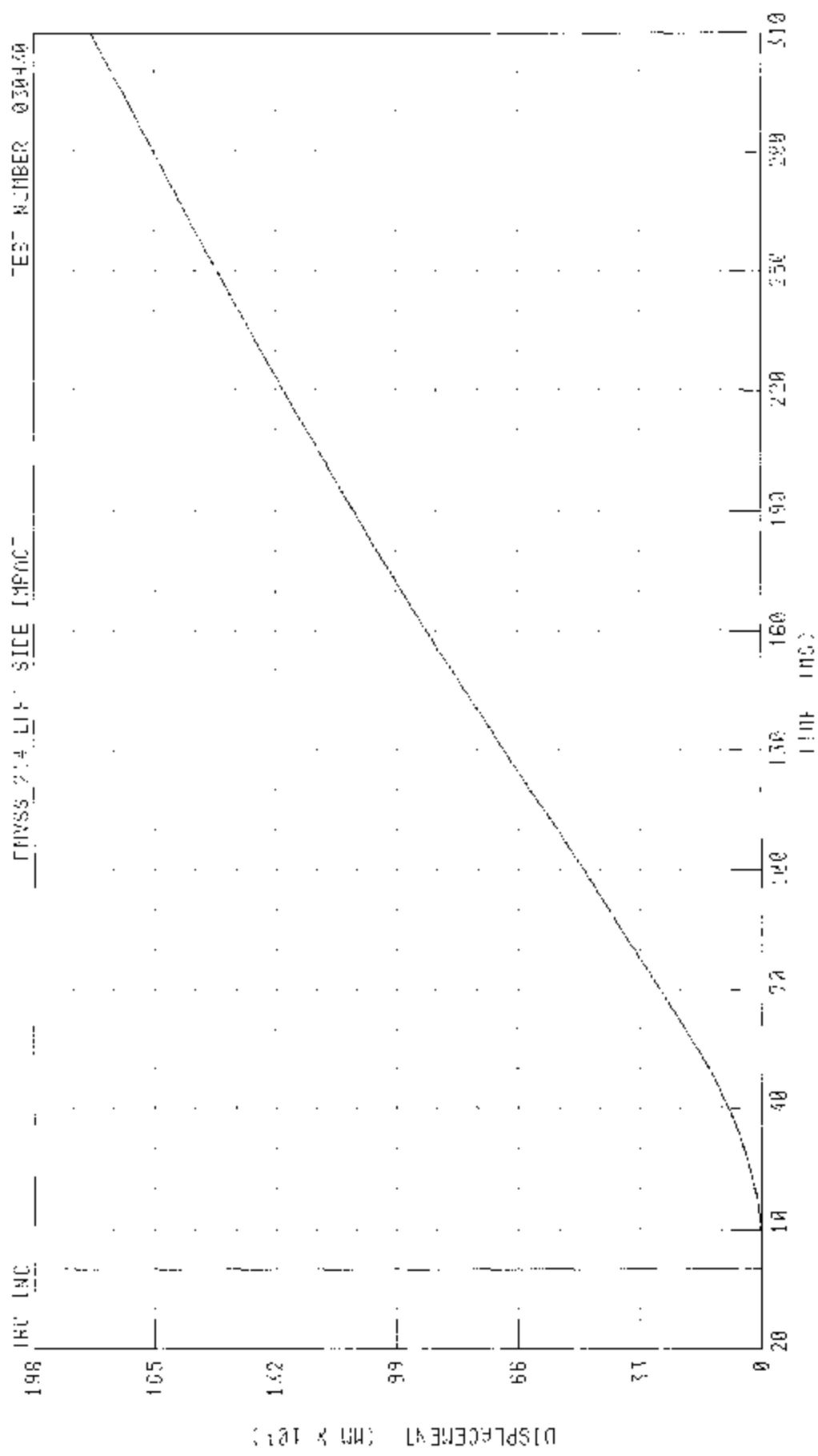
TIME (MS)

CHANNEL: RRTYV1 FILTER: CH1 CLASS: 180

TEST DATA: 05.81 KPH/H @ 124.55 MS, 0.00 KPH/H @ 2.00 MS

55078 <PH 90 DEGR>: SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT



TEST NUMBER 030430

CHANNEL 001/01 FILTER CH. CLASS 100

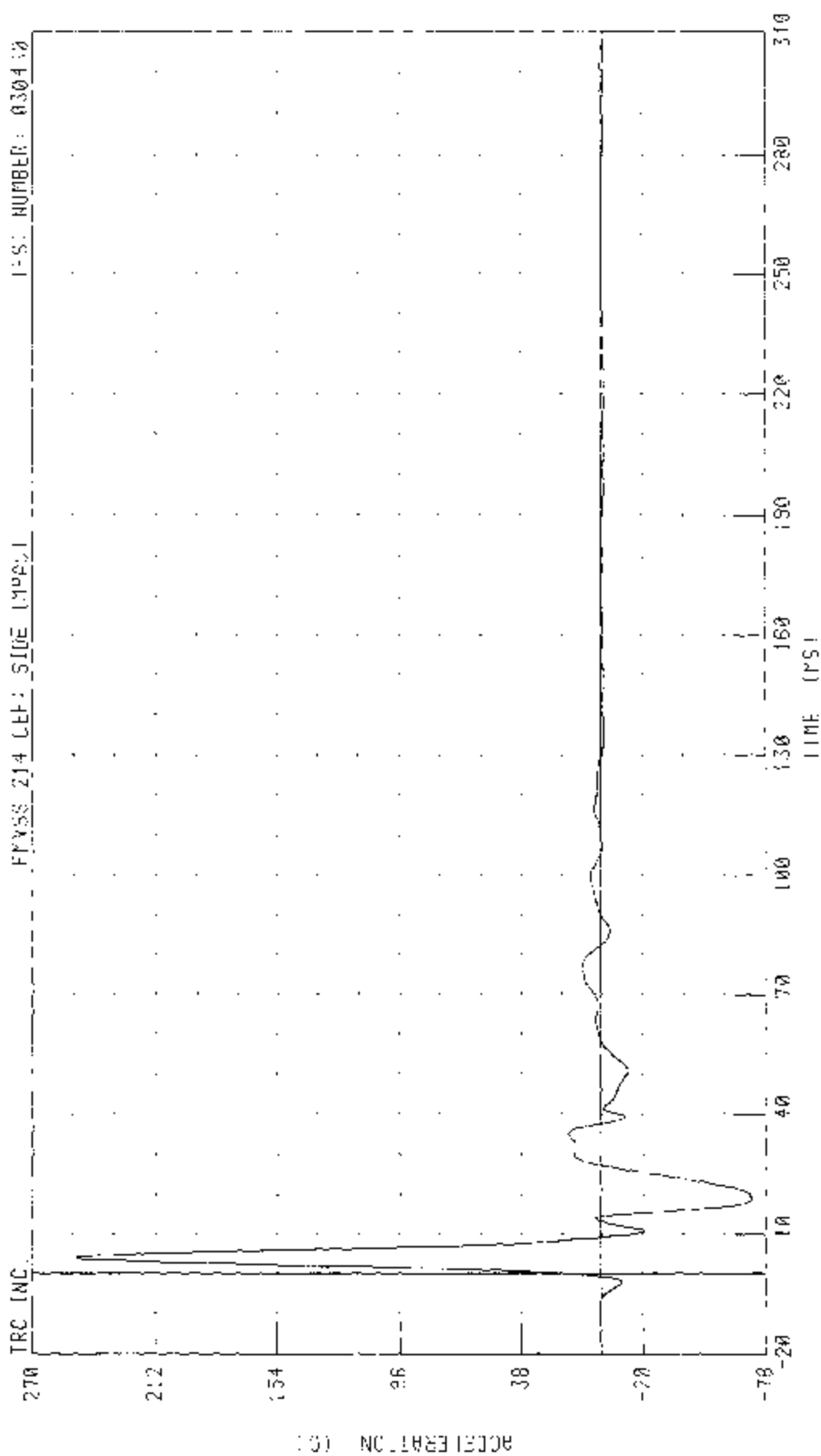
TIME (ms)

PEAK DATA: 1301.17 MM @ 310.00 MS, C PEAK @ 0.00 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) (70 LEFT SIDE) IF 2023 34V 325i

LEFT LOWER A-POST Y-Axis OCCURRENCE: 0%

FRYSS 214 LEFT SIDE (PP-1) I-S: NUMBER: 030430



CL-ANNEAL LAYG1 - LTER- CIL. CLASS CR

SM 02-11-03 17-00 06.647 0100 4073

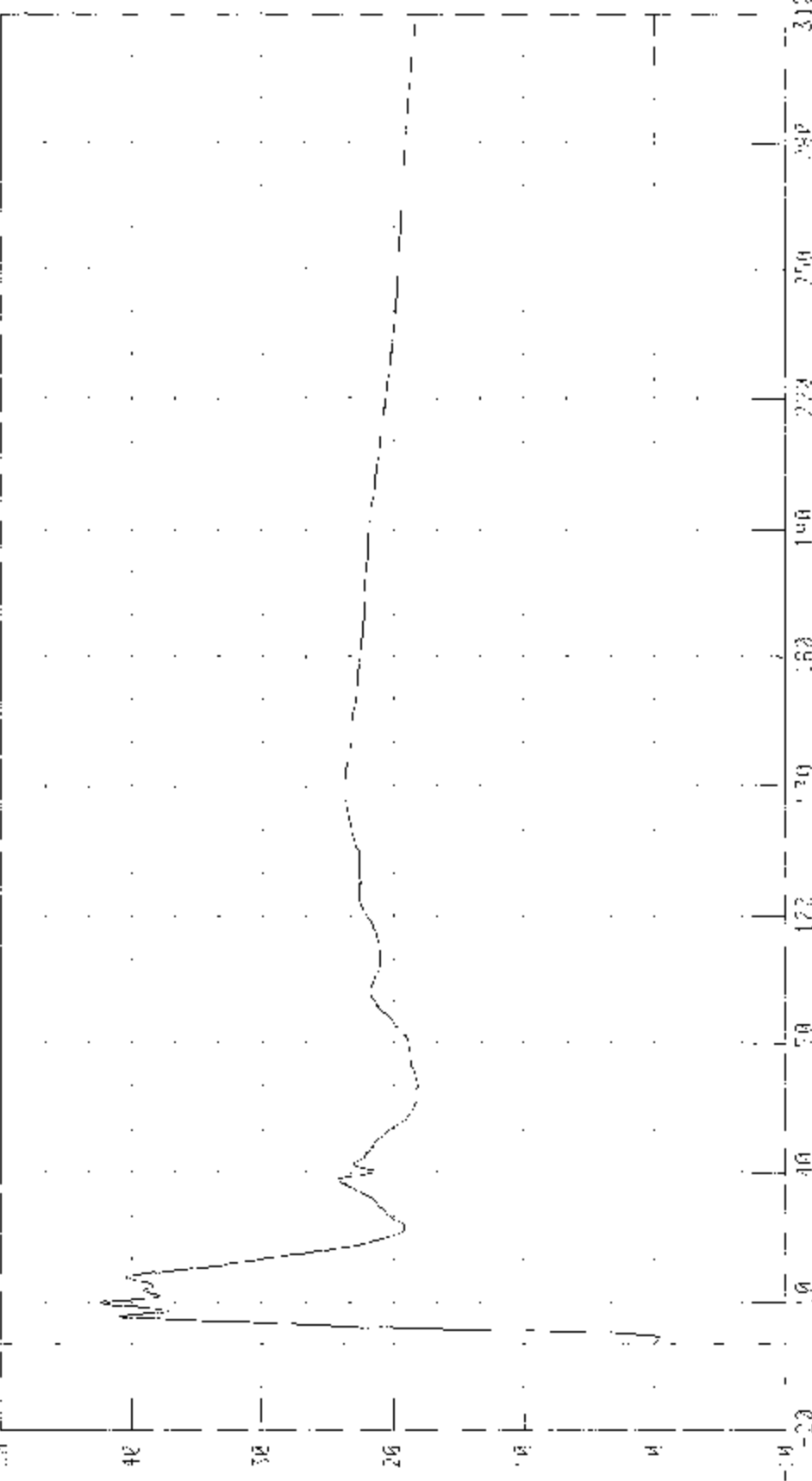
55/28 KF4 30 DEGREE SIDE IMPACT (NOVIM, REFORMED, L HAMPIER) INTO LEFT SIDE OF 2004 R/V 325.

LEFT LOWER R-POST Y-AXIS VELOCITY

TEST NUMBER: 030430

EVENTS 214 LEFT SIDE IMPACT

TRC INC



030430

B-117

030430

CUTWHEEL L 030430 FILTER CH 030430

TIME (MS)

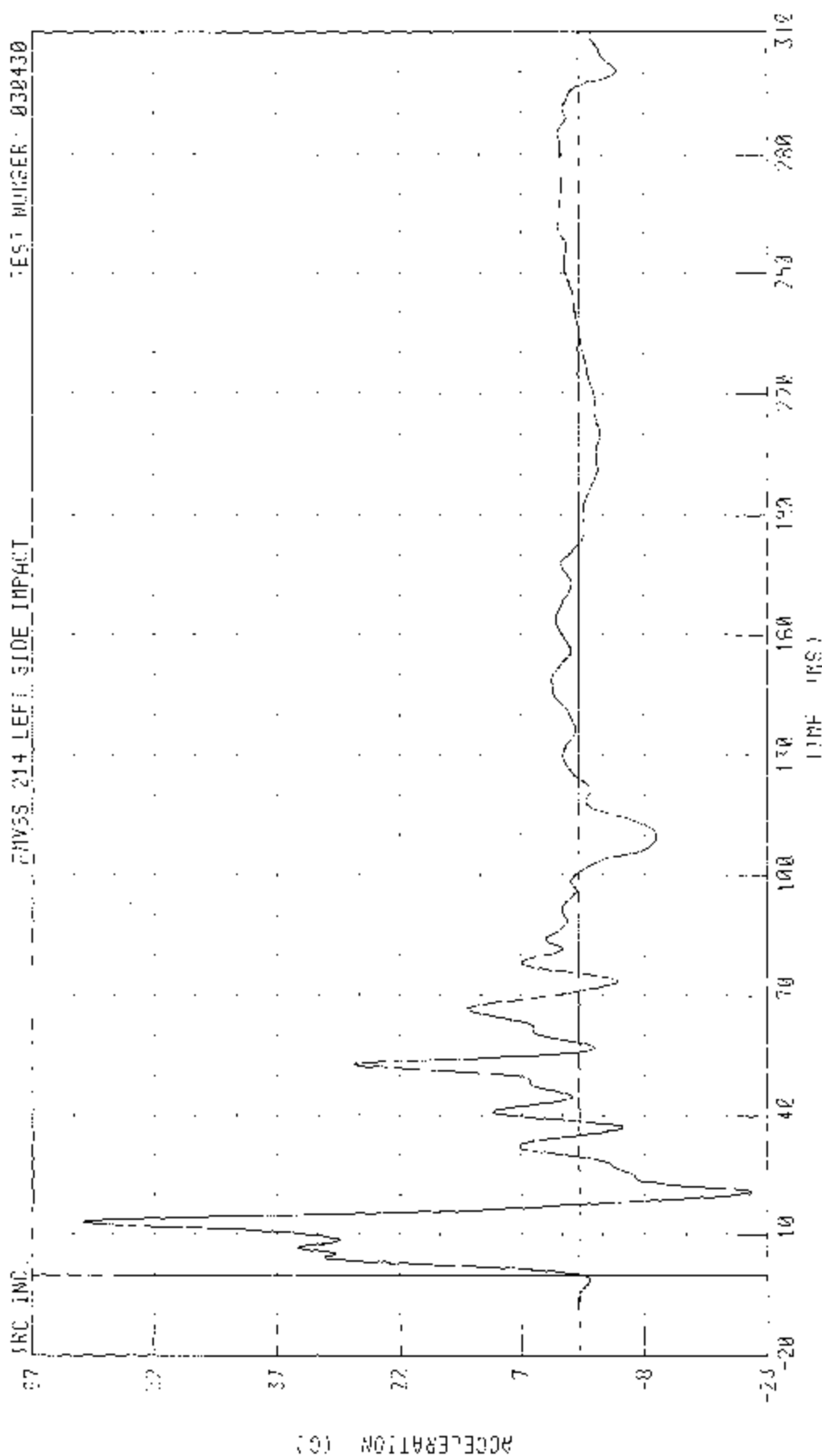
PEAK 030430 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160 162 164 166 168 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212 214 216 218 220 222 224 226 228 230 232 234 236 238 240 242 244 246 248 250 252 254 256 258 260 262 264 266 268 270 272 274 276 278 280 282 284 286 288 290 292 294 296 298 300 302 304 306 308 310 312

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO IFS-7 SIDE OF 20M3 RMW 3251

LEFT MIDDLE P-POST Y AXIS ACCELERATION

CHVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



CHANNEL 1 CHVSS1 FILTER CH CHVSS 60

TIME (MS)

PEAK DATA 60 94 0 13 20 MS, 20.23 0 0 20 00 MS

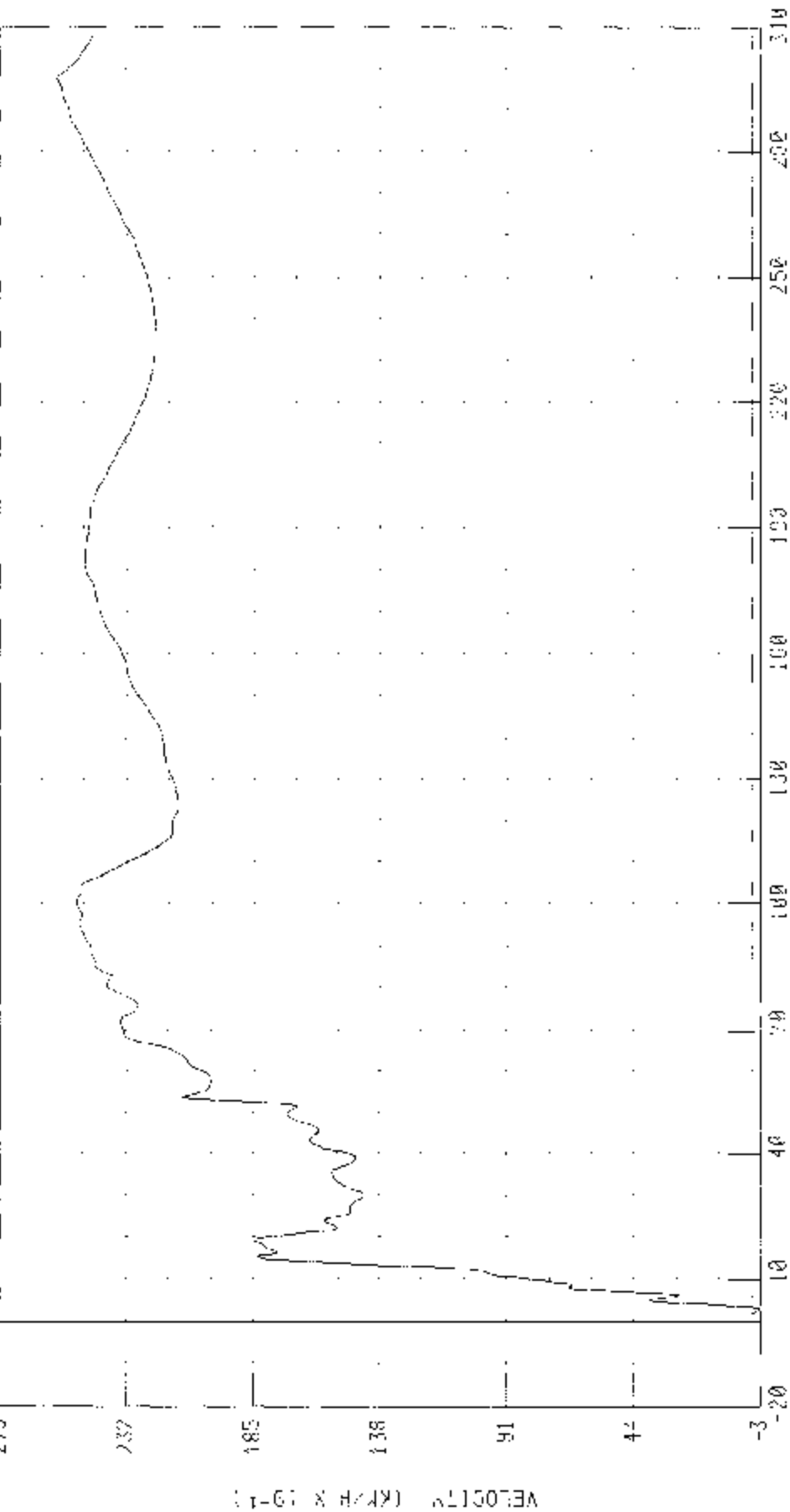
33-28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN C LEFT SIDE OF 2003 HWY 170

FFT ANALYSIS OF 3007 Y-Axis VELOCITY

FMVSS 214 LEFT SIDE IMPACT

IRC 160

TEST NUMBER 030430



TIME (ms)

CHANNEL 160V: FILTER: Gm. CLASS 160

PEAK DATA: 25.75 KPH @ 207.84 MS, -0.27 G @ 0.00 18

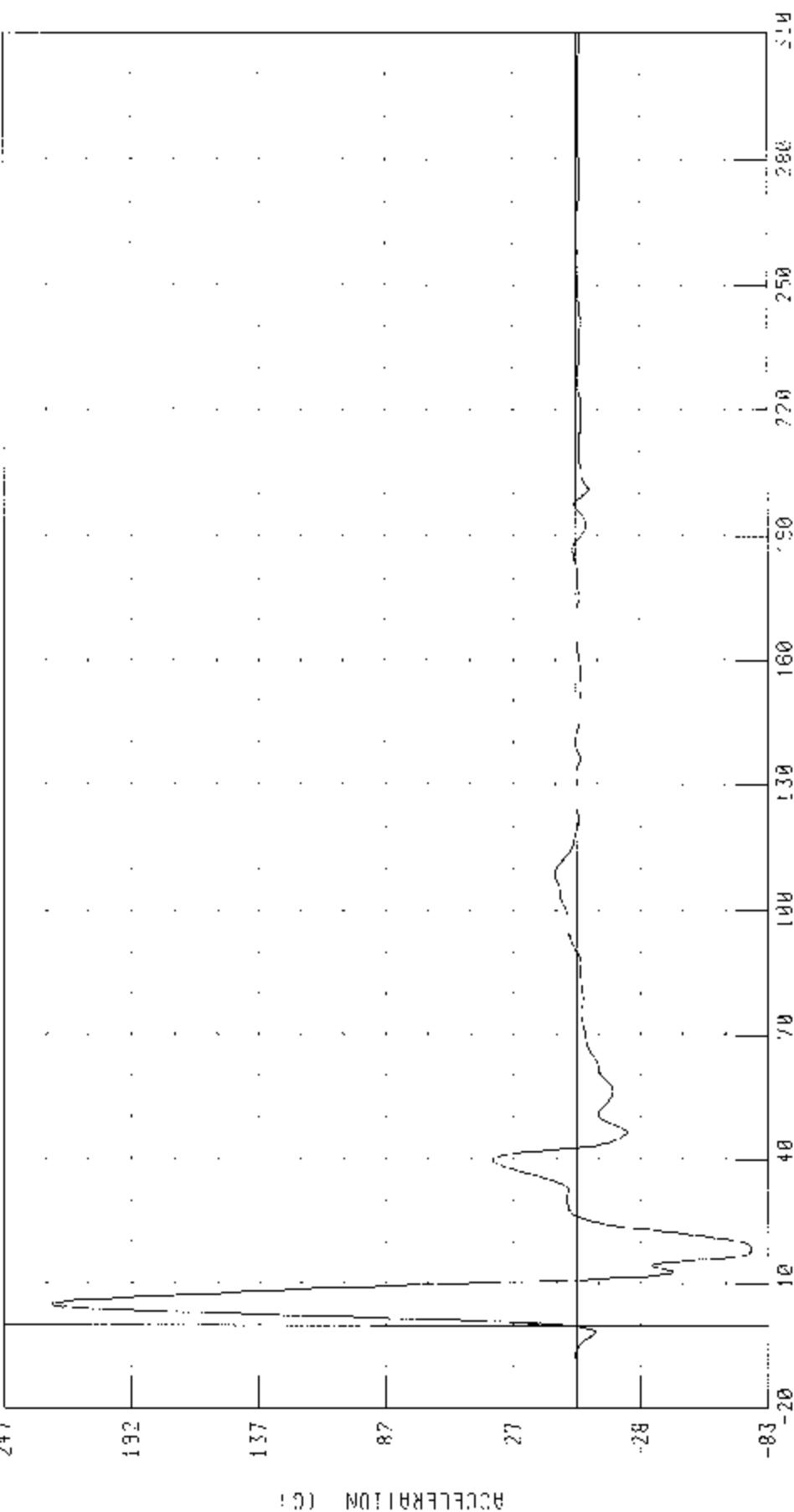
55/28 KPH 90 DEGREE: SIDE IMPACT INVOLVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT IMPER 3-POST Y-AXIS ACCELERATION

TRC (NC)

FMVSS 214 LEFT SIDE IMPACT

IPS NUMBER 930130



CHANNEL: J1AYG1 FILTER: CH CLASS 60

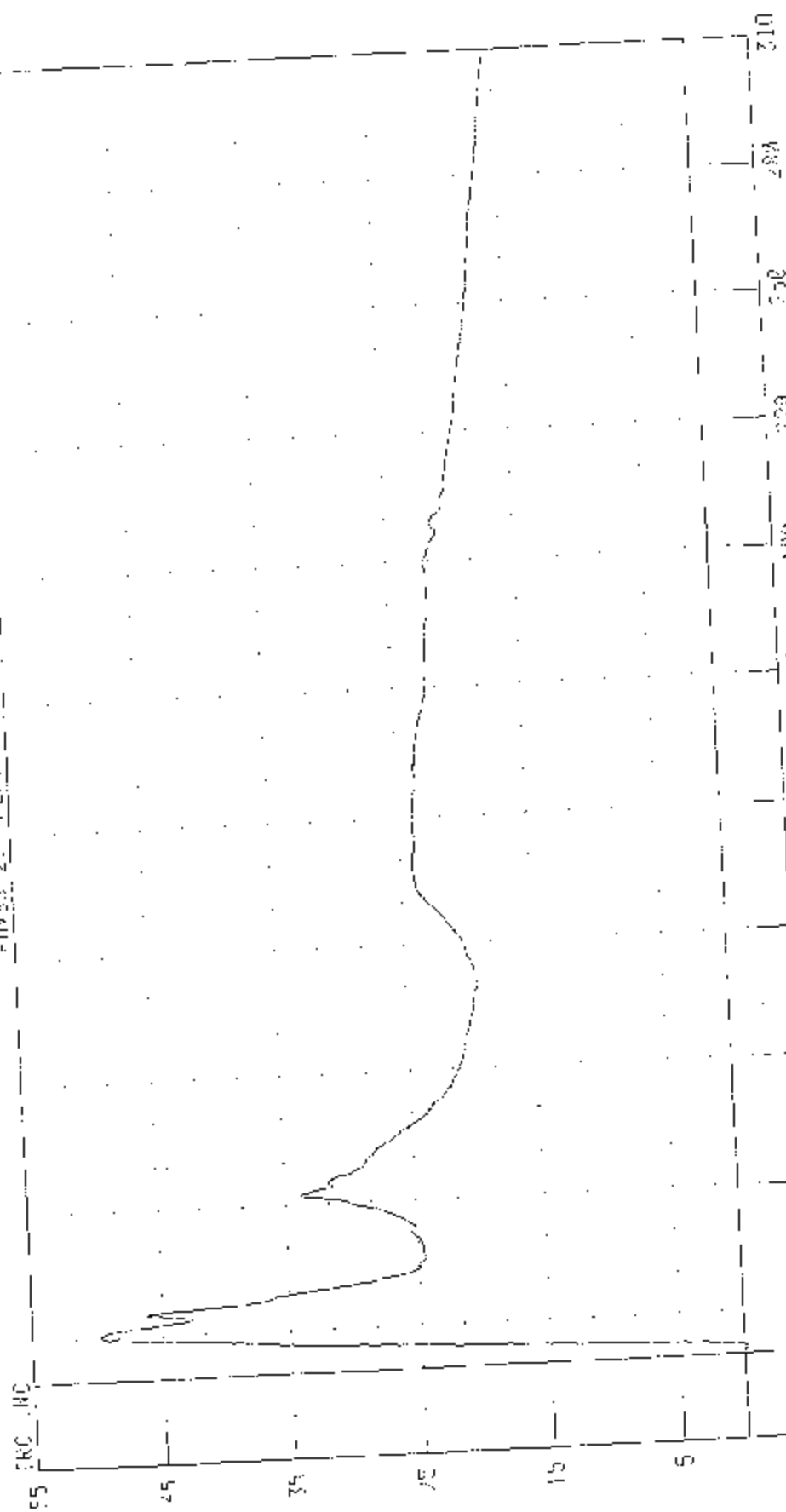
PLAY DA H 220 30 0 0 5.20 MS. -75 64 0 0 18 80 15

55/28 KPH 90 DEGREE SLIP IMPACT (MOVING ESTORMARRE BARRIER) INTO LEFT SIDE OF 200' BAY 325)

LEFT LOWER 5-POST Y-AXIS VELOCITY

TEST NUMBER: 00130

FIGURE 2-4 LEFT SIDE IMPACT



TIME (SEC) 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 310
PEAK VELOCITY 49.75 KPH @ 10.32 SEC. @ 27 KPH @ 165.165

CHANNEL 113-VI FILTER C4 GLOSS 100

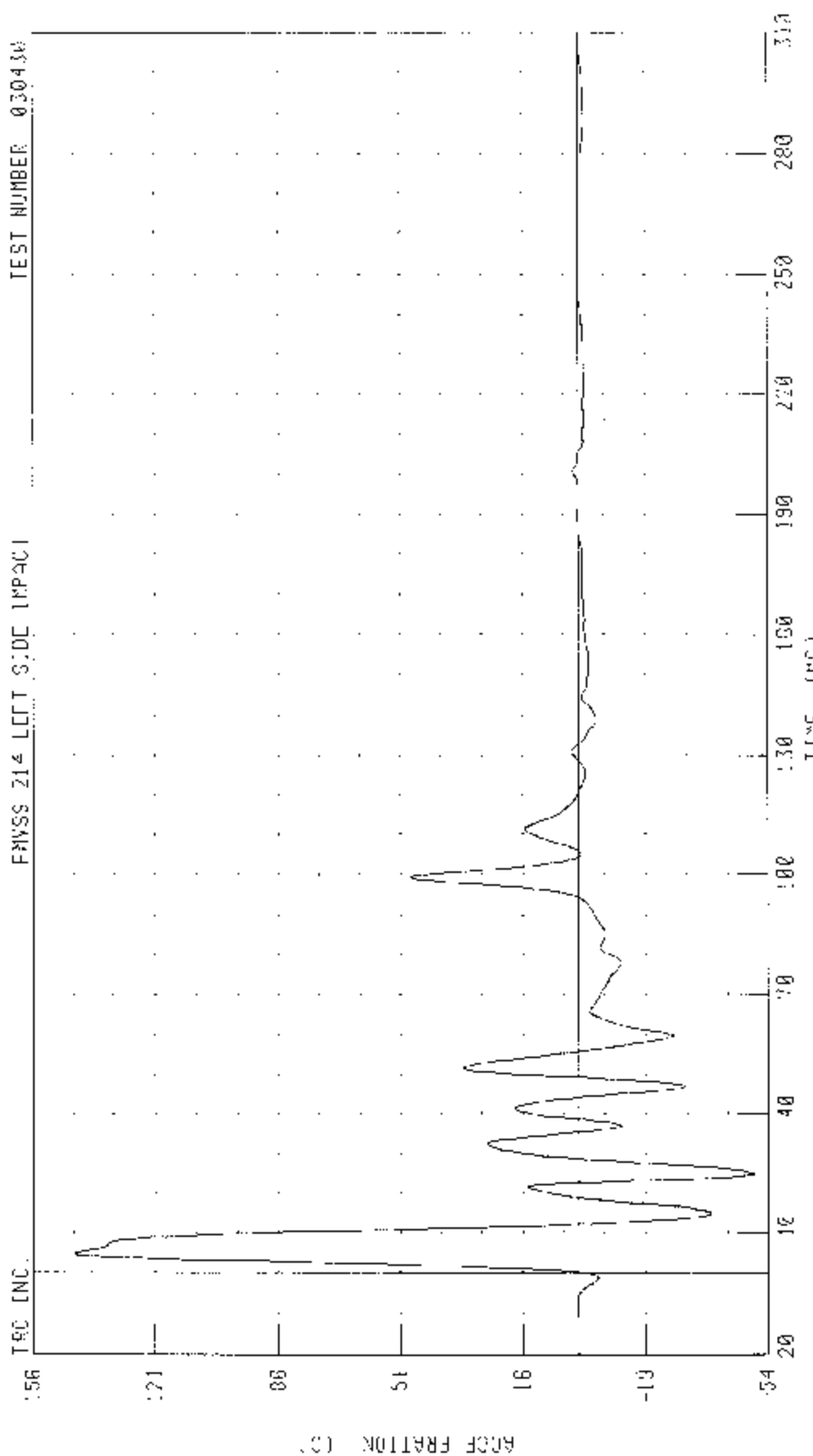
(H-KM) ATTORNEY

55/28 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2203 HWY 3251

14-7 MILLIE 3-POST Y-AXIS ACCELERATION

FNVS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



CL-ENNEI 1MBY01 FILTER: CH CLASS 60

PEAK DATA 143.98 MS ± 96.15; -49.60 G ± 0.04 G

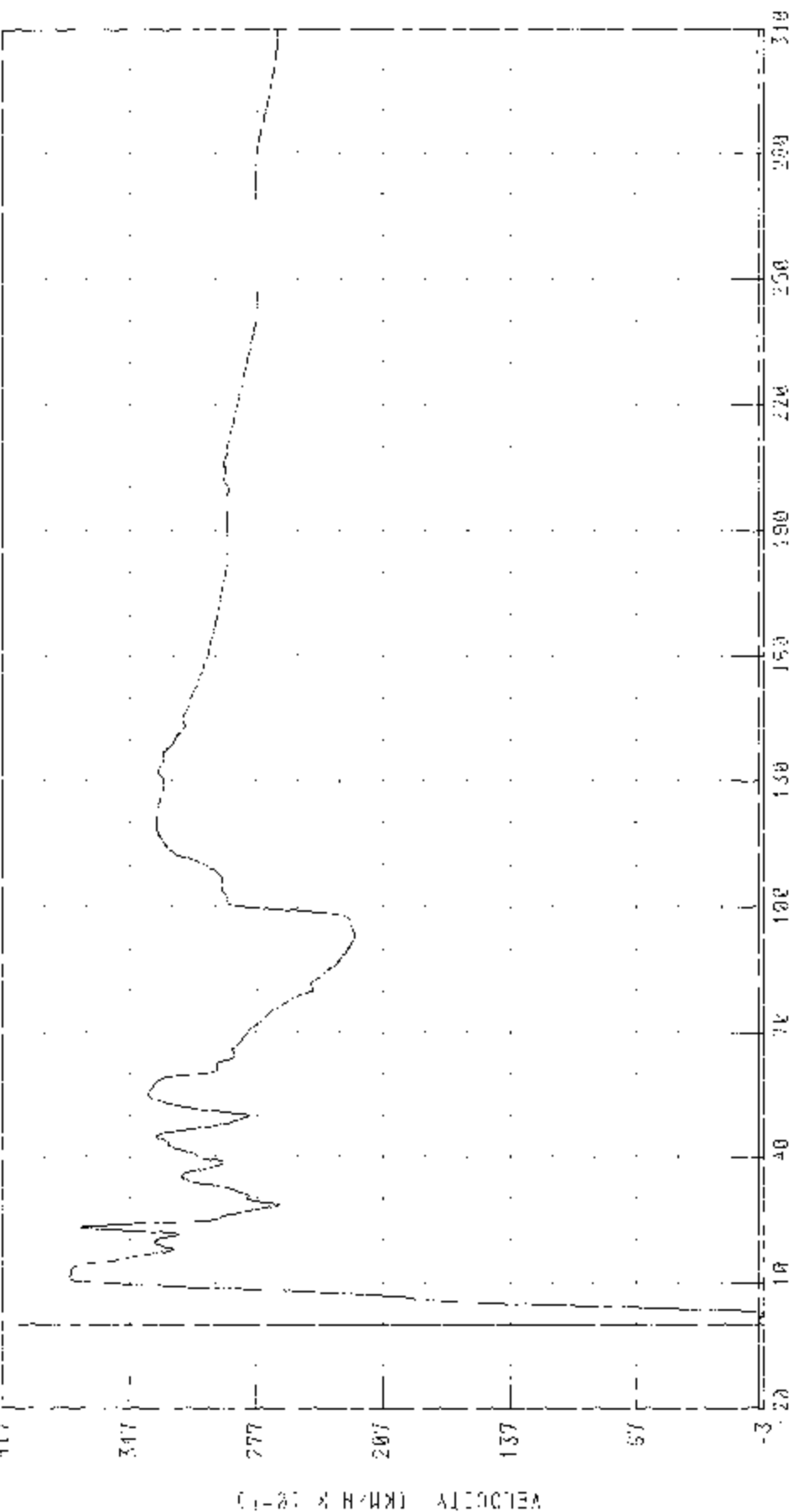
55/20 KPII 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2093 GHW 3251

LEFT MIDDLE B-POST Y-AXIS VELOCITY

PMSS 214 LEFT SIDE SPEED

IFS# NUMBER: 052430

TRC INC.

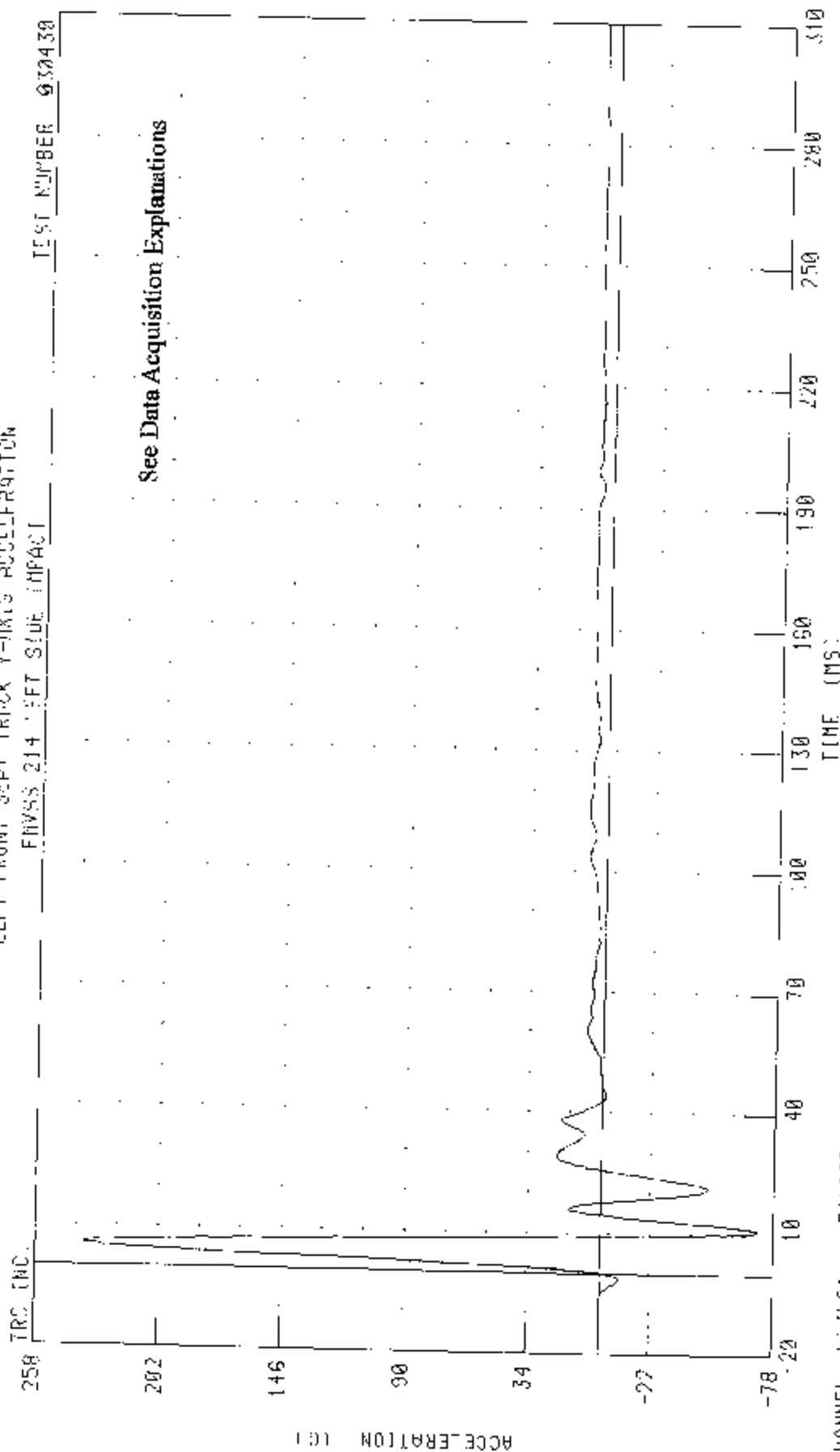


100% 100%

CHANNEL: LTRIVI FILTER: CH CROSS 120

PEAK DATA 36.83 KPH 9 TO 12 MS, -0.34 KPH 18 TO 40 MS

55/20 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 200.3 RMW 525;
LEFT FRONT SEPT TRACK Y-AXIS ACCELERATION



TEST NUMBER 030430

CHANNEL 1 (Y) FILTER OF CLASS 40

PLAX DATE 235.48 6 9 5 59 MS 71.02 G 8 11 12 ES

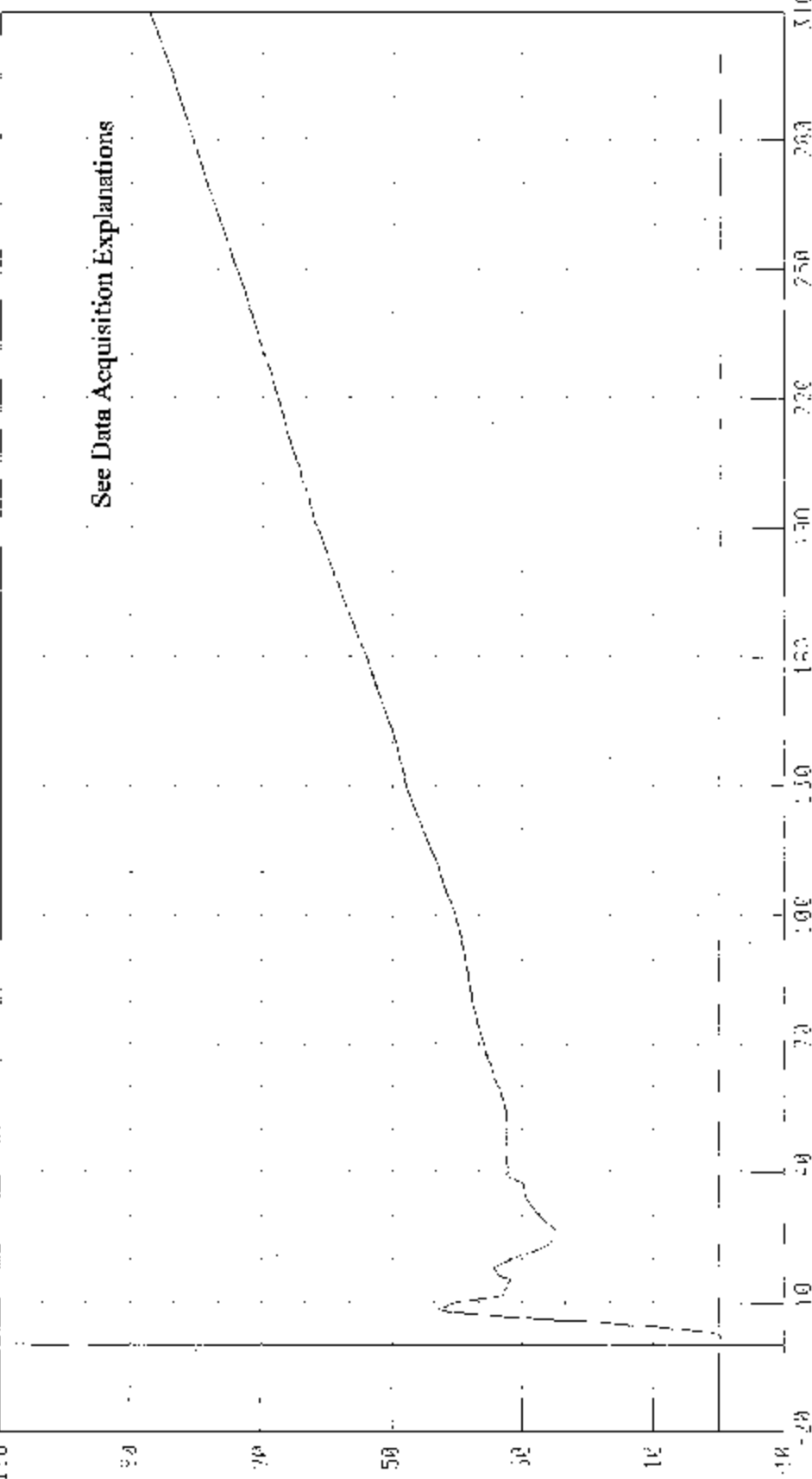
05/28 KTS 90 DEGREE SIDE IMPACT (MOVING OFFROADABLE BARRIER) INTO LEFT SIDE OF 2002 BMW 325i

LEFT FRONT SEAT TRUCK Y AXIS VELOCITY

TEST NUMBER 030-30

FINISS 214 LEFT SIDE IMPACT

TRC INC



TIME (MSEC)

PF04/0010 05/28 KTS 90 DEGREE SIDE IMPACT

CHANNEL 1-1751 FILTER CH C135 180

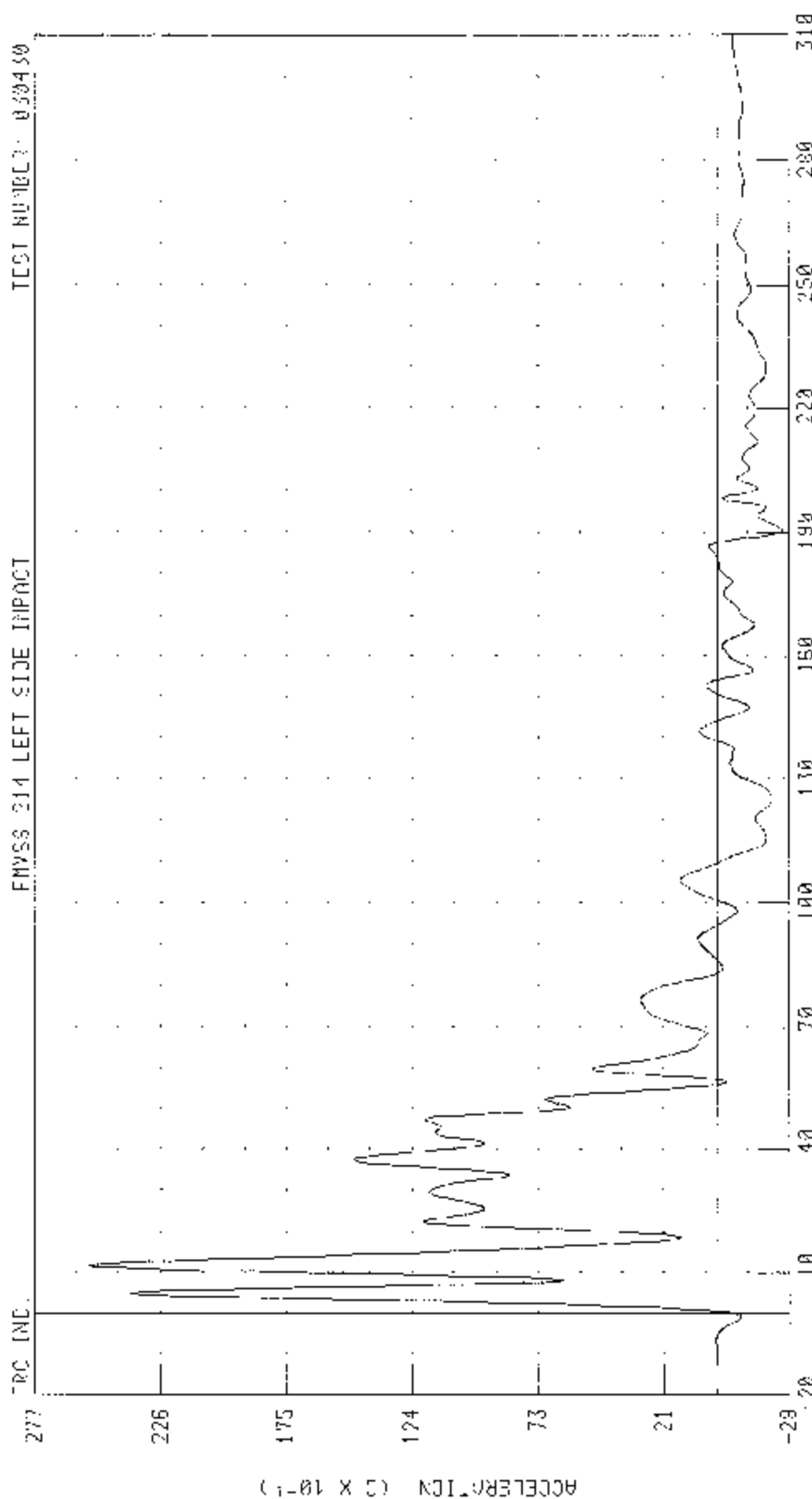
(IN/SEC) X1000

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LFF REAR SEAT BACK Y-AXIS ACCELERATION

TEST NUMBER: 030430

FRYSS 214 LEFT SIDE IMPACT



TIME (MS)

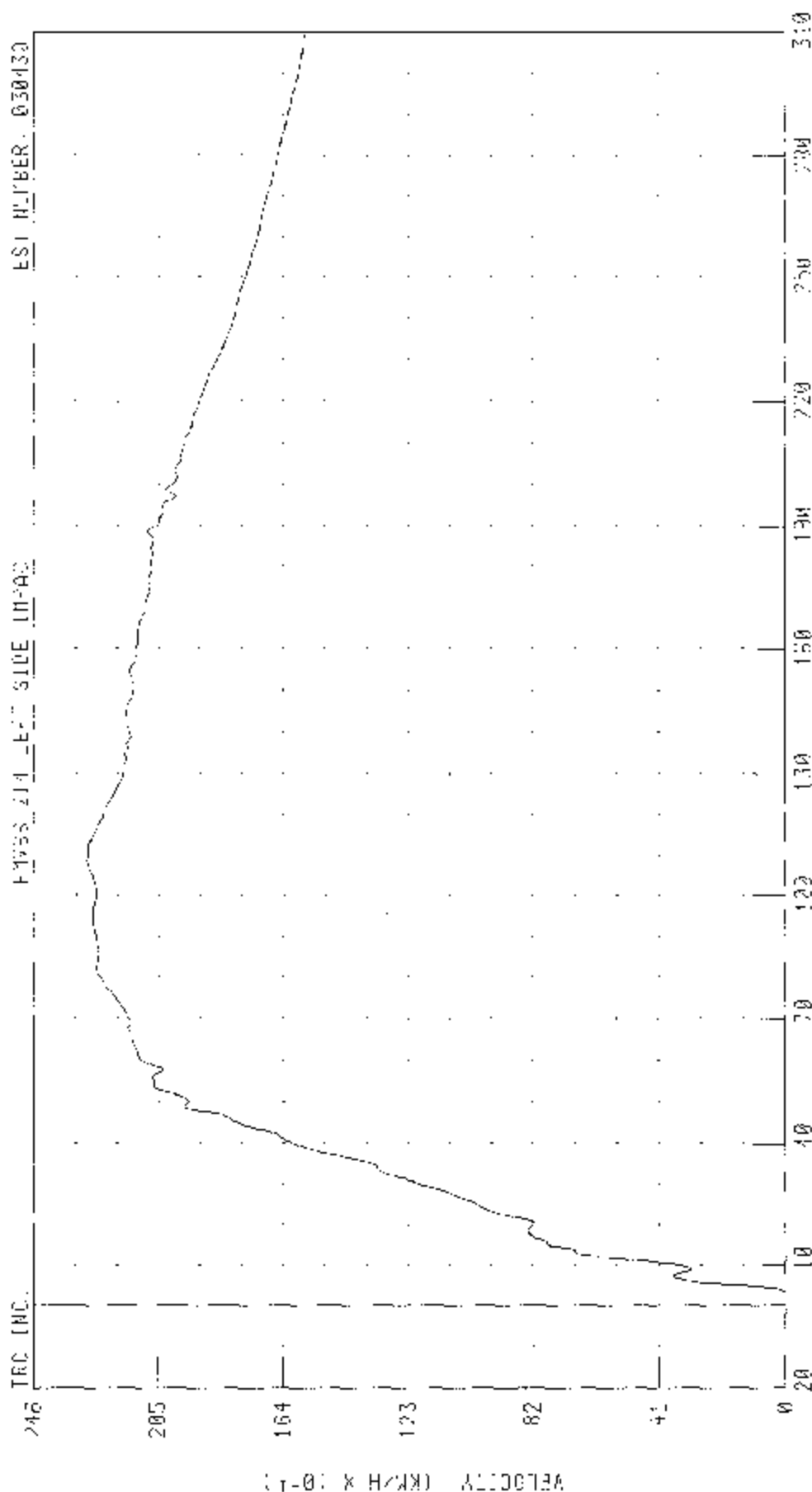
CHANNEL: LRTYC1 FILTER: CH C 455 60

PEAK DATA 25 44 0 0 11 70 15, 2 70 0 0 130 48 15

55428 KPH 30 DEGREE SLOP IMPACT (MOVING DEFORMABLE BARRIER) IN THE SIDE OF 2000 RPA 3000

LEFT REAR SCOT TRACK Y-AXIS VELOCITY

PMISS 214 LEFT SIDE IMPACT ESI NUMBER 030430



TIME (MS)

PEAK DETECT 2236 GRAPH 0 100 70 40 -0 00 KPH 0 2 30 MS

CHANNEL LATVI FILTER CH CLASS 180

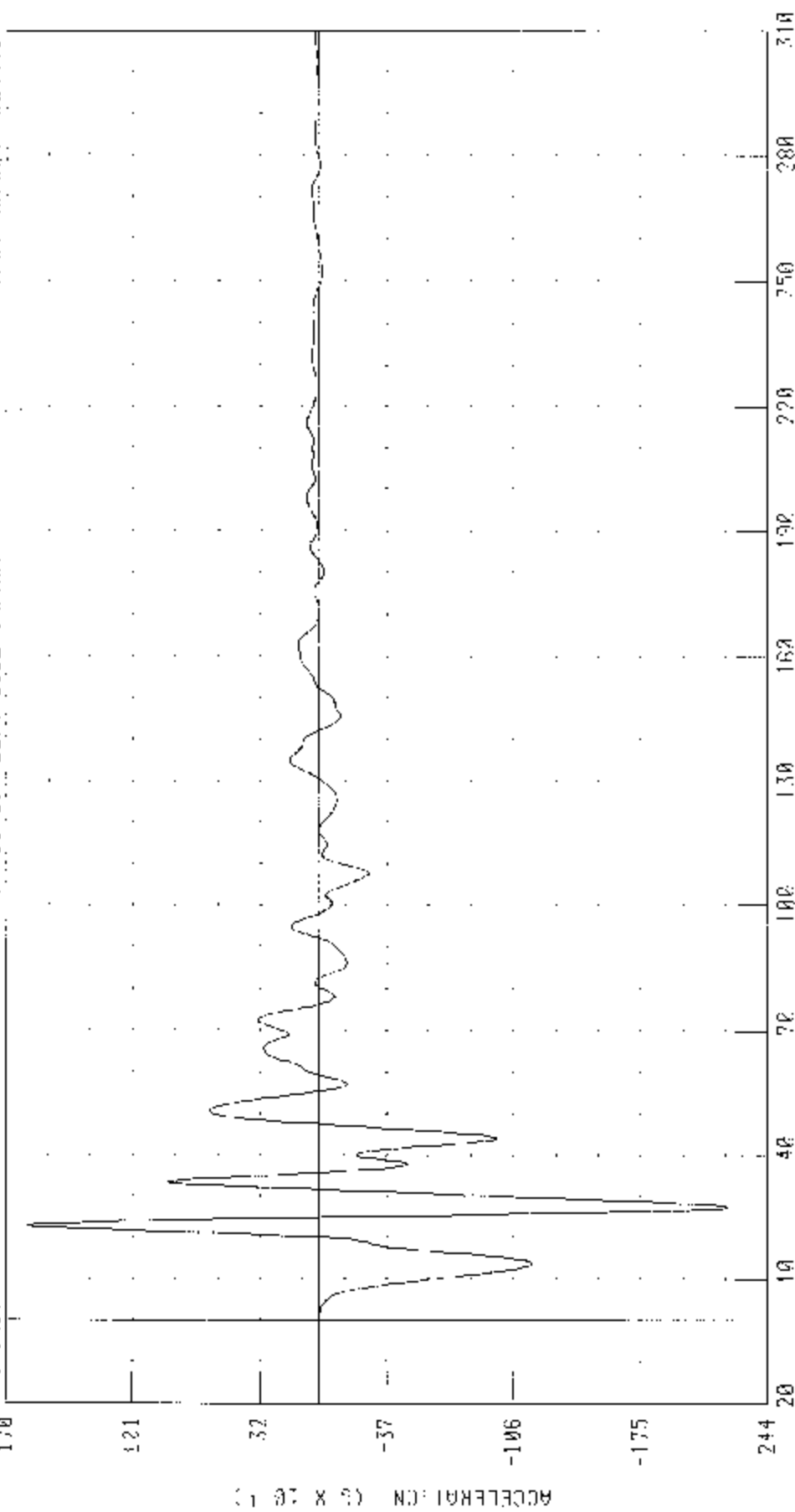
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325I

VEHICLE CENTER OF GRAVITY X AXIS ACCELERATION

170 -PC MC-

F*VSS 214 LEFT SIDE IMPACT:

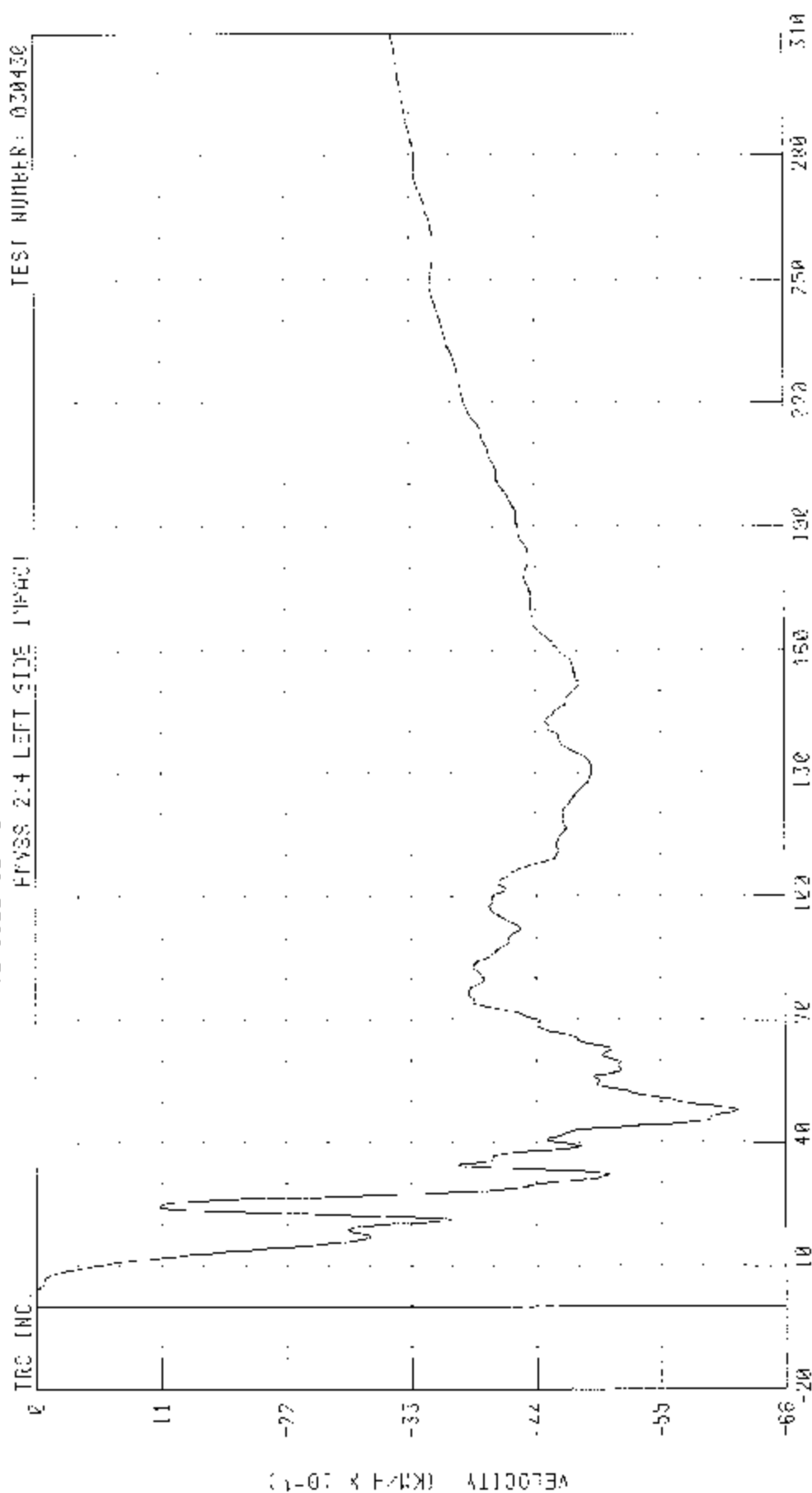
14-51 N.J.A.C. 17:27



75-28 KP4 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF AREA 20W 325J

VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

HYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030430

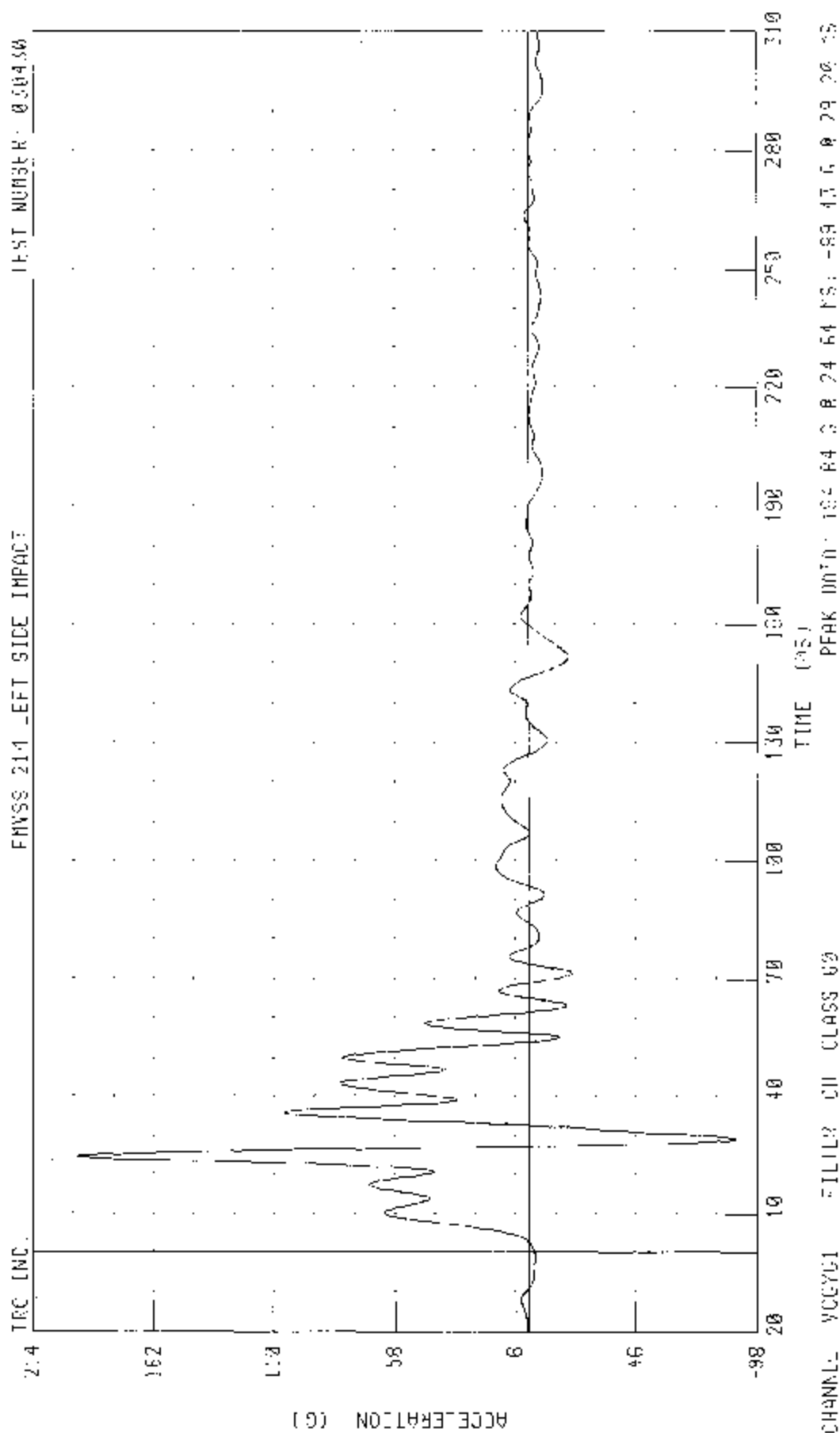


CHANNEL VCCXV1 FILED CH. CLASS 130

PEAK DATA 0 00 00.4 0 2.00 MS. 0 17 KP-H 0 47 92 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

VEHICLE CENTER OF GRAVITY Y-AXIS ACCELERATION

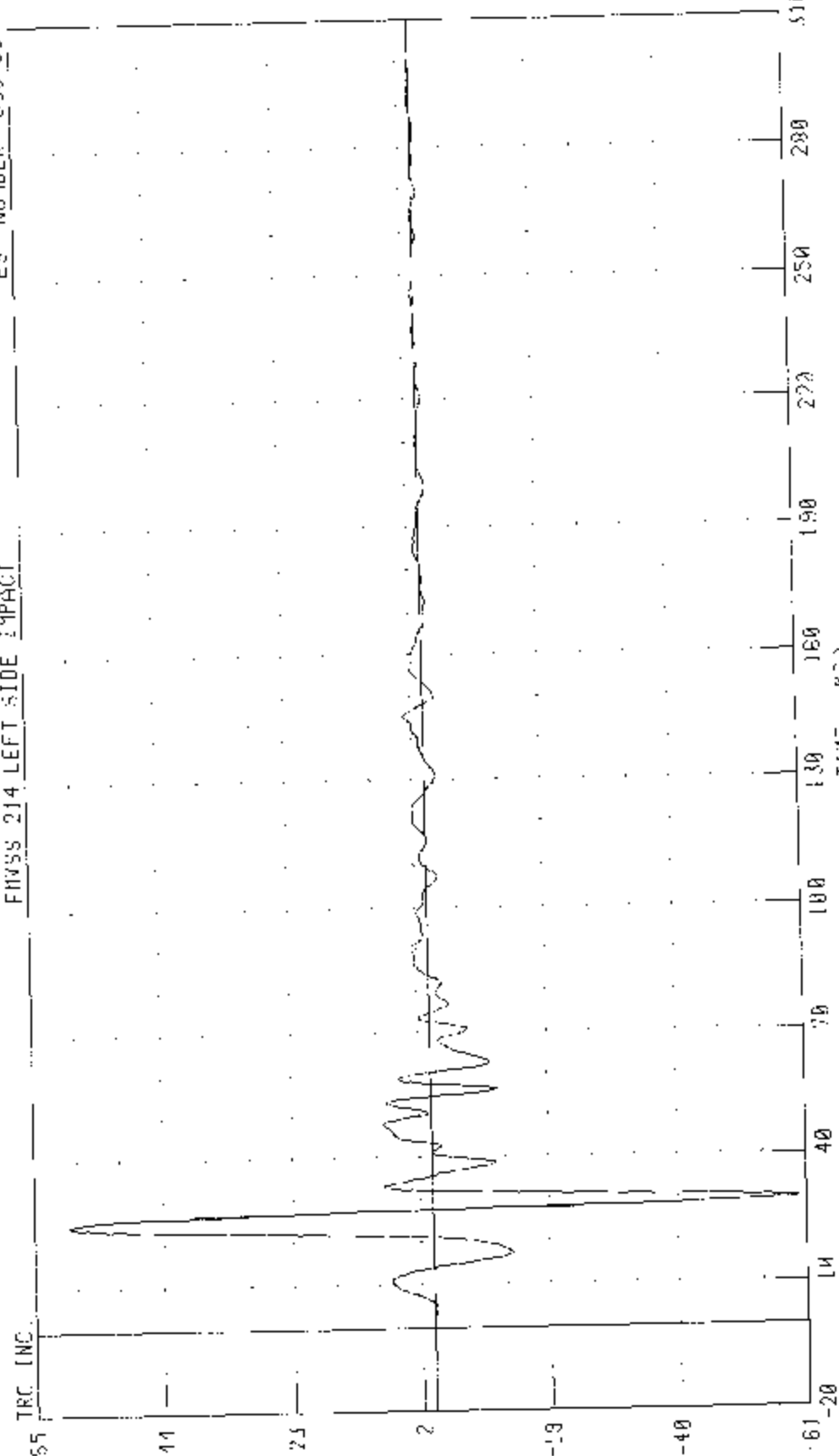


55/23 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO LEFT SIDE OF 2003 BMW 325i

VEHICLE CENTER OF GRAV. Y Z-AXIS ACCELERATION

TEST NUMBER 030430

TRC INC.



ACCELERATION (G)

B-132

CHANNEL YUGZ01

FILTER 4P CLASS 60

TIME (MS)

PFFZ DF10 59 42 0 0 24 36 1'S. -59 04 0 0 29 00 MS

030430

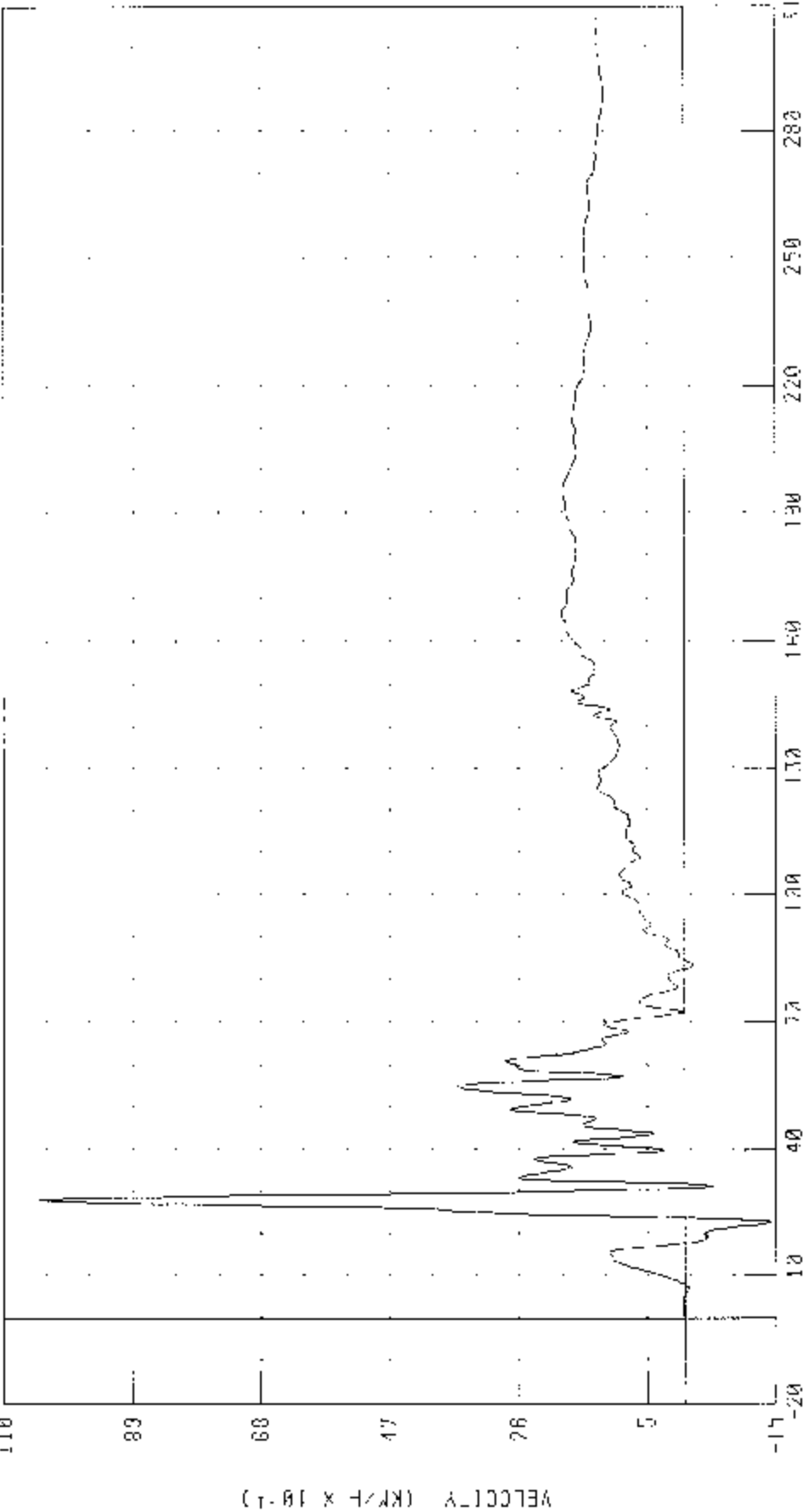
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2400 KPH 5250

VEHICLE CENTER OF GRAVITY Z AXIS VELOCITY

TEST NUMBER: Q30430

TRACES 214 LEFT SIDE IMPACT

TRC IN.



TIME (MS)

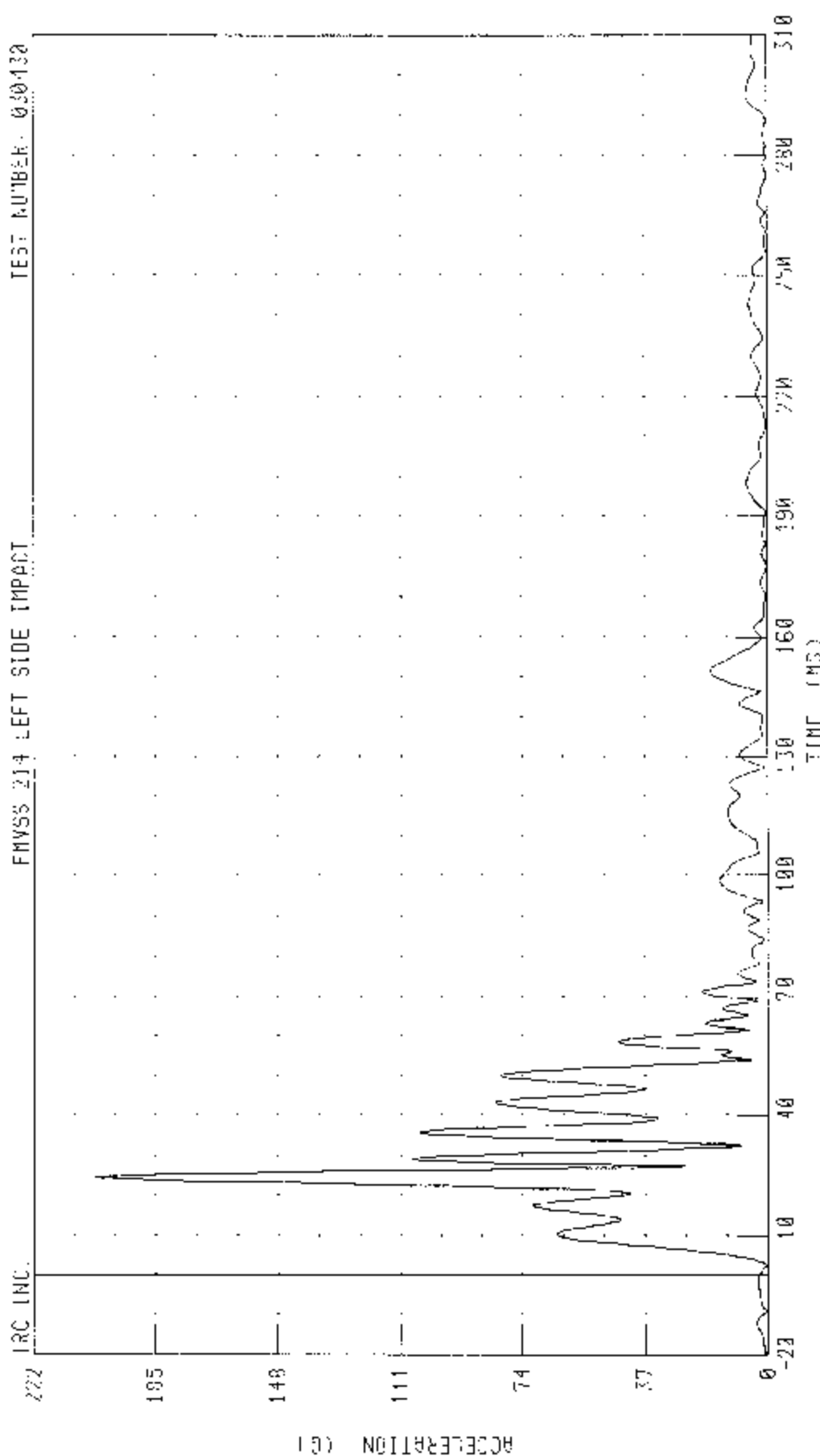
CHANNEL VCCZY1 FILTER CH CLASS 180

PERM DATE 19 52 41-4 25 76 MS - 41 KPH 22 61 PS

55723 KPH 90 DEGREE SLIP IMPACT (MOVING DEFORTABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION

IRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030430



CHANNEL VC0301 FILTER CH. CLASS 60

PEAK DATA 223.50 G @ 24.64 MS, 9.02 G @ 9.04 MS

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

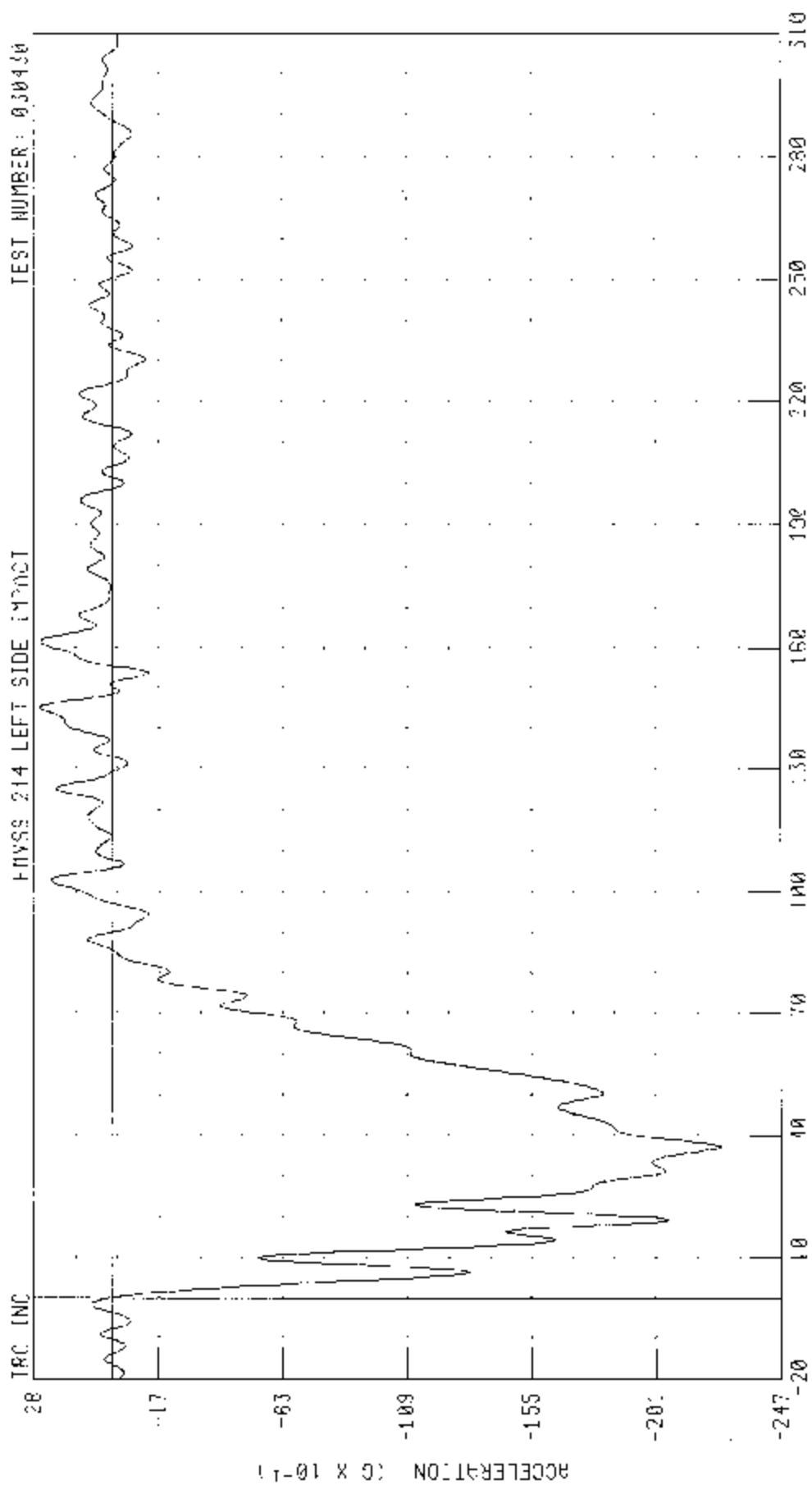
Contact Data - Filter Class 1000

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

MID CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT



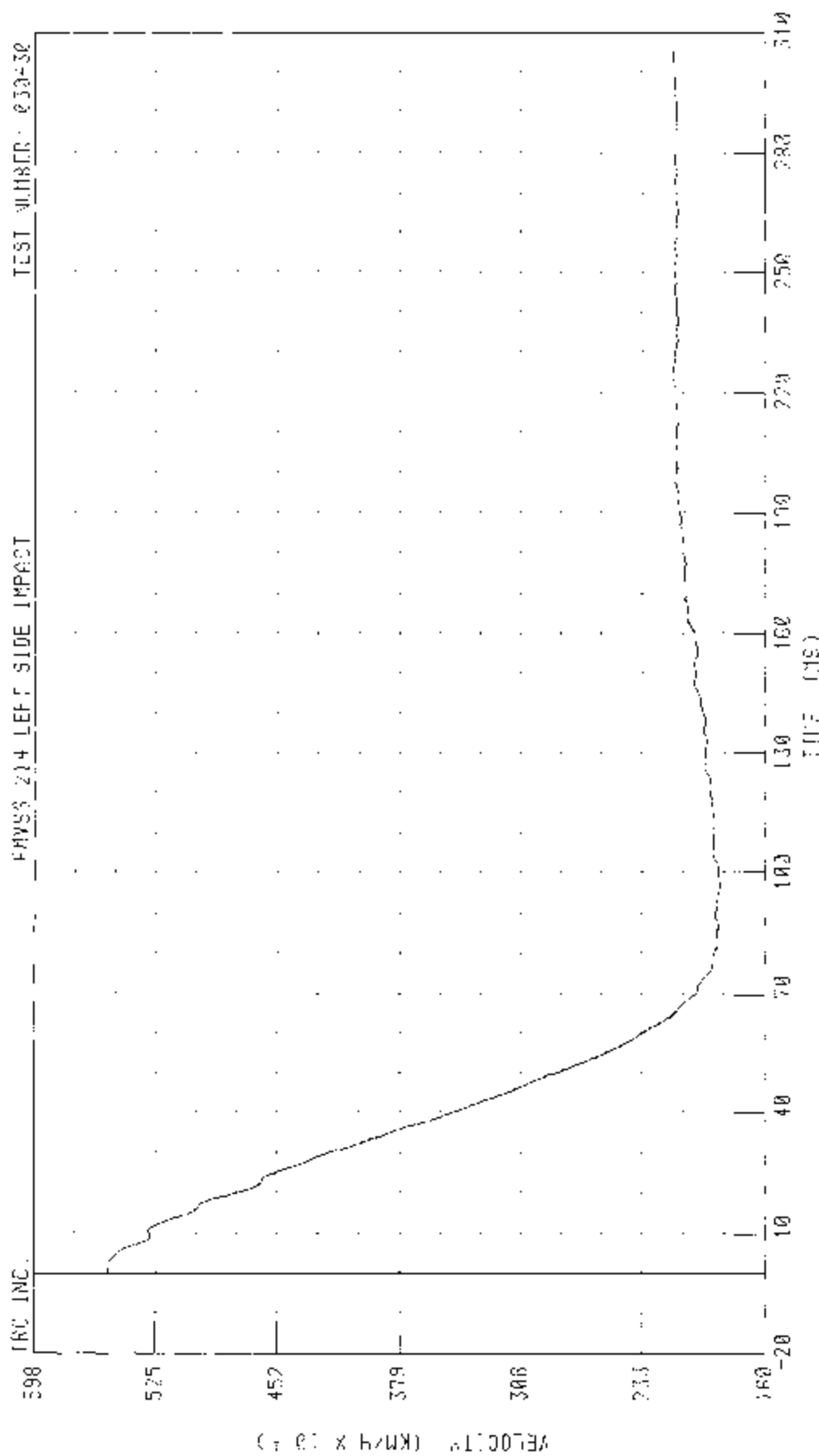
CHANNEL: B00XG1 FILTER: CR, 0.000 00

PEAK DATA: 2.67 G @ 145.04 MS; -22.44 G @ 37.20 MS

55/28 KPH 90 DEGREE SIDE IMPACT CAUSING DEFORMABLE BARRIER: INTO LEFT SIDE OF 2003 BUW 2251

NOR CENTER OF GRAVITY X AXIS VELOCITY

PHYS 214 LEFT SIDE IMPACT TEST NUMBER: 030-30



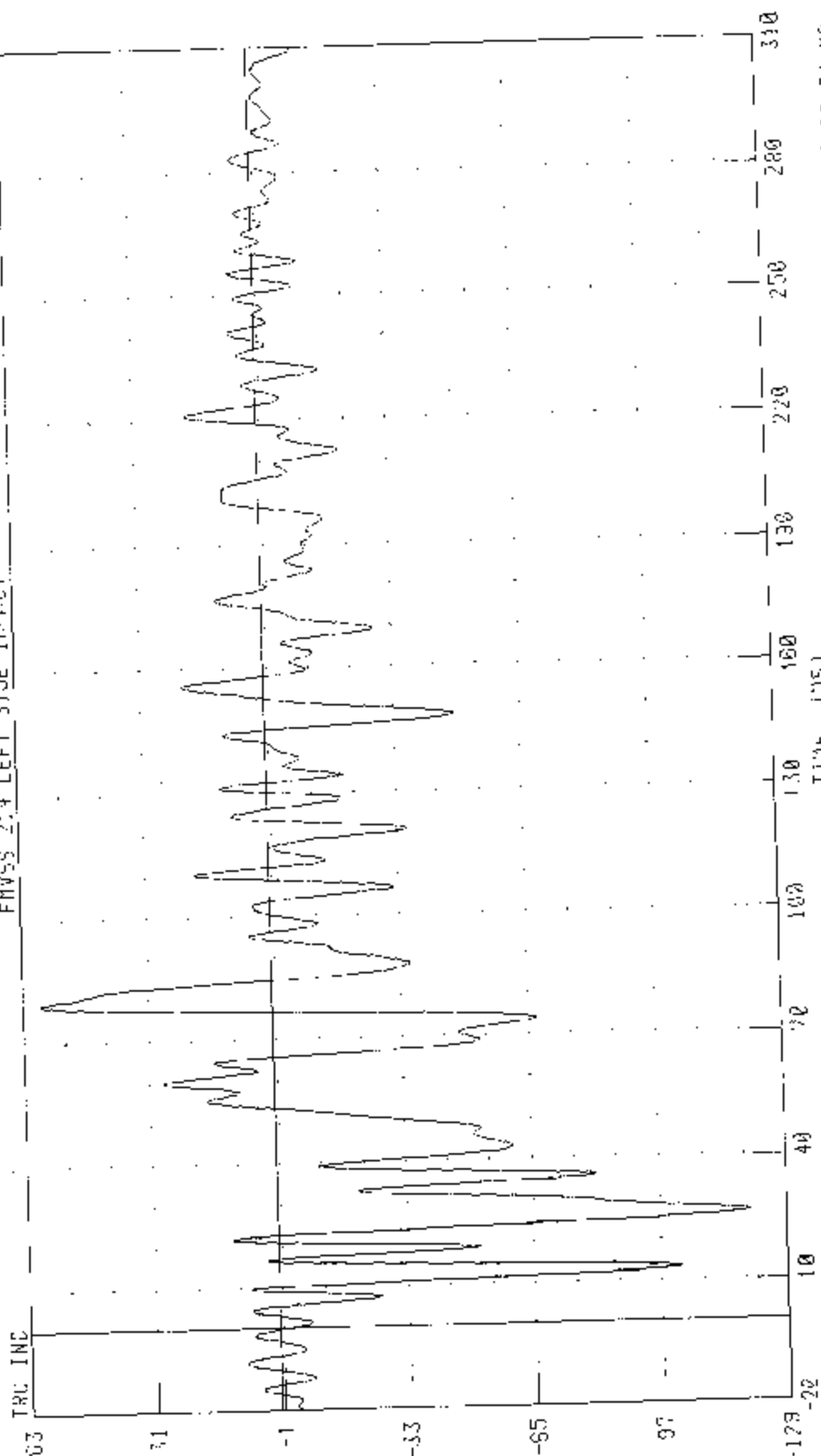
TIME (MS)

CHANNEL: B00XV1 FILTER: CH CLASS: 120

PEAK DATA: SC 49 AT 120.00 MS, 13.62 KPH 90/20 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 QMW 375.
 MDB CENTER OF GRAVITY Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030430



ACCELERATION (G X 10^-1)

PEAK DATA 5.81 0.0 19.82 MS, -11.99 5.0 26.64 MS

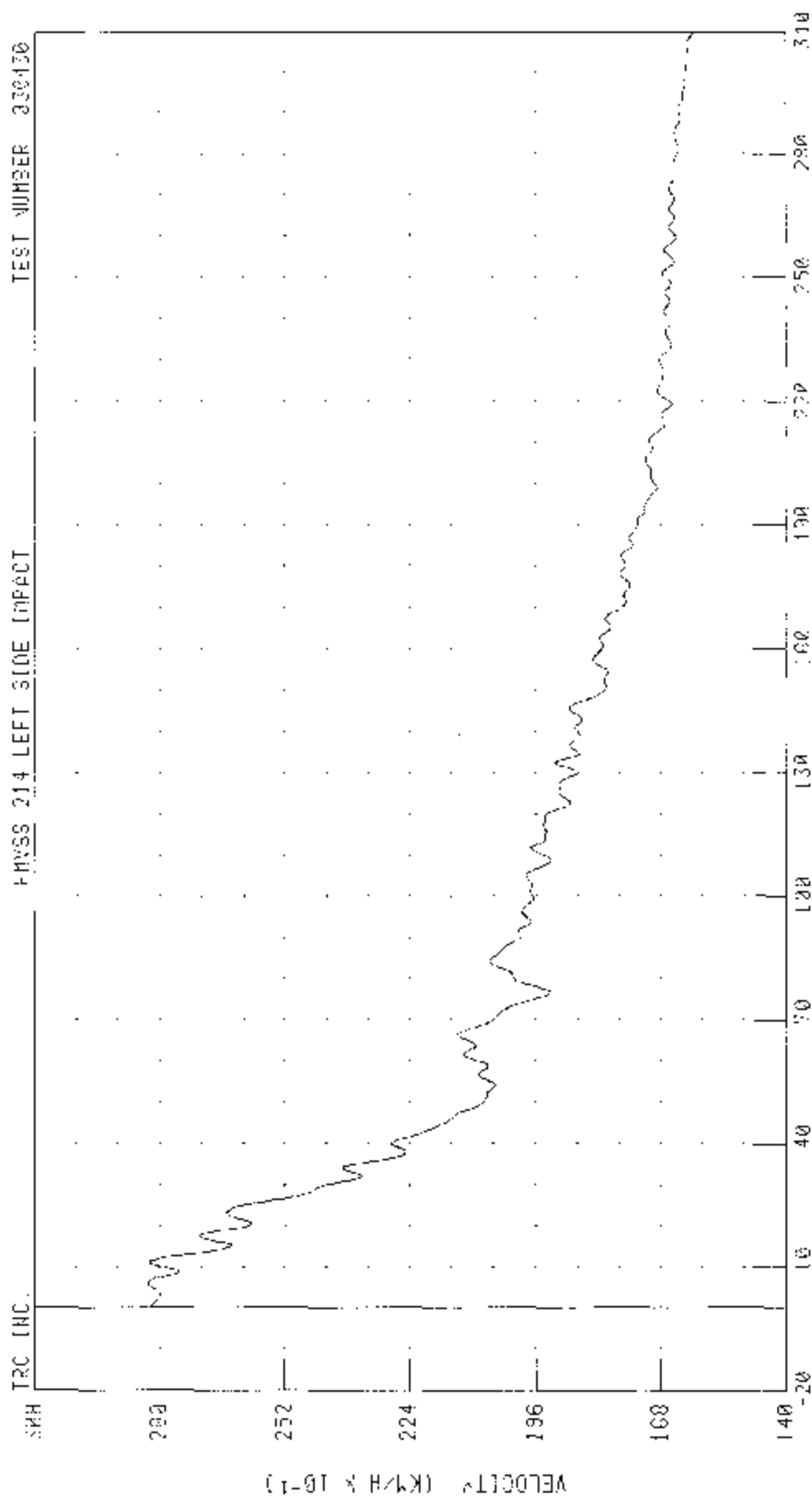
CHANNEL BODY01 FILTER CF 31455 60

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325

%DB CENTER OF GRAVITY V AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 330430



TIME (MS)

CHANNEL: BDC-V2 SELLER: CH CLASS 184

PEAK DATA 20 26 KPH 90 5 94 TR 10 02 KPH 18 310 20 MS

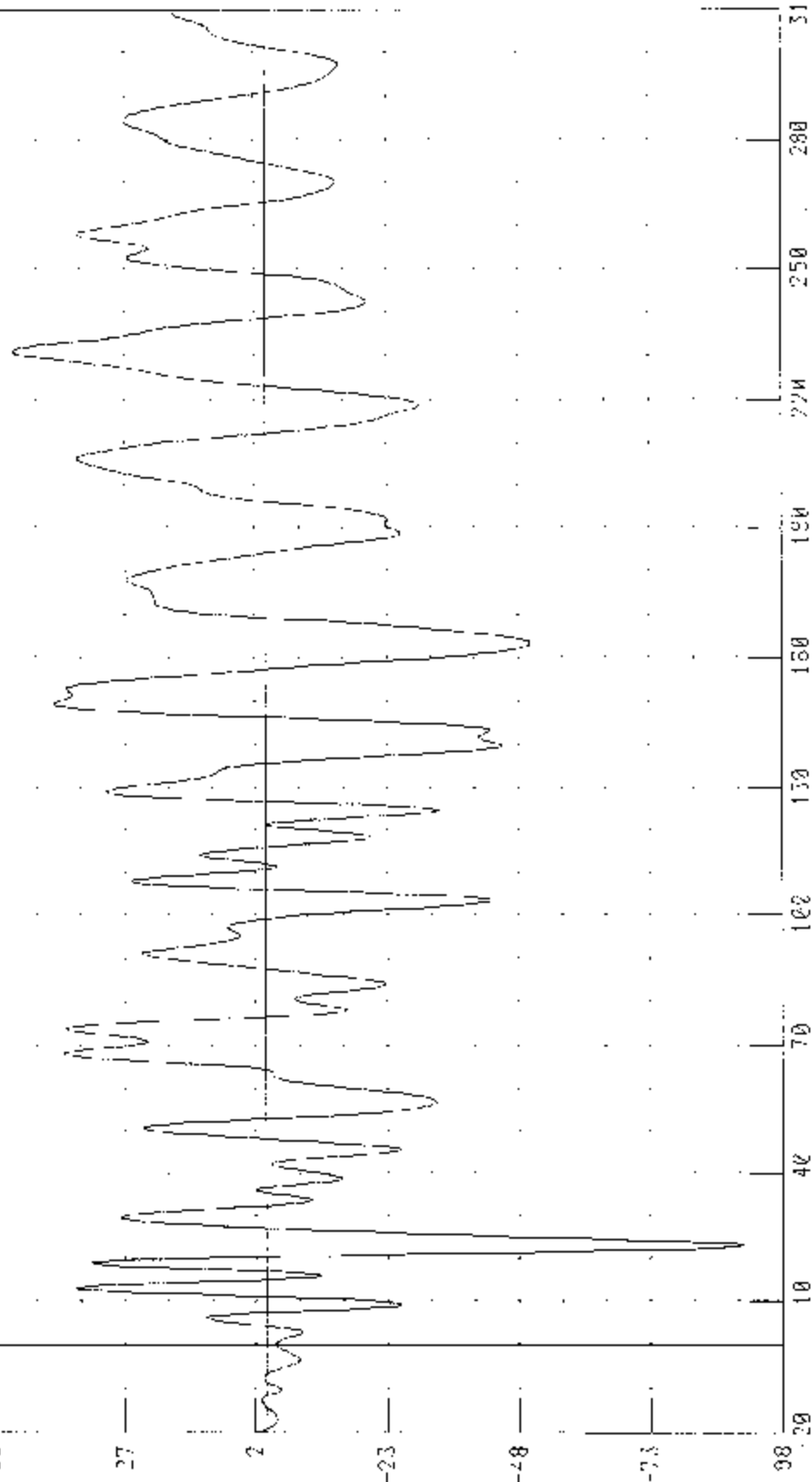
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INITIAL LEFT SIDE OF 2003 BMW 325i

103 CENTER OF GRAVITY Z-AXIS ACCELERATION

IFSI NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

TRC (INC)



(1-01 X 10) NO1108573008

TIME (MS)

CHANNEL B00701 FILTER: CIL CLASS 60

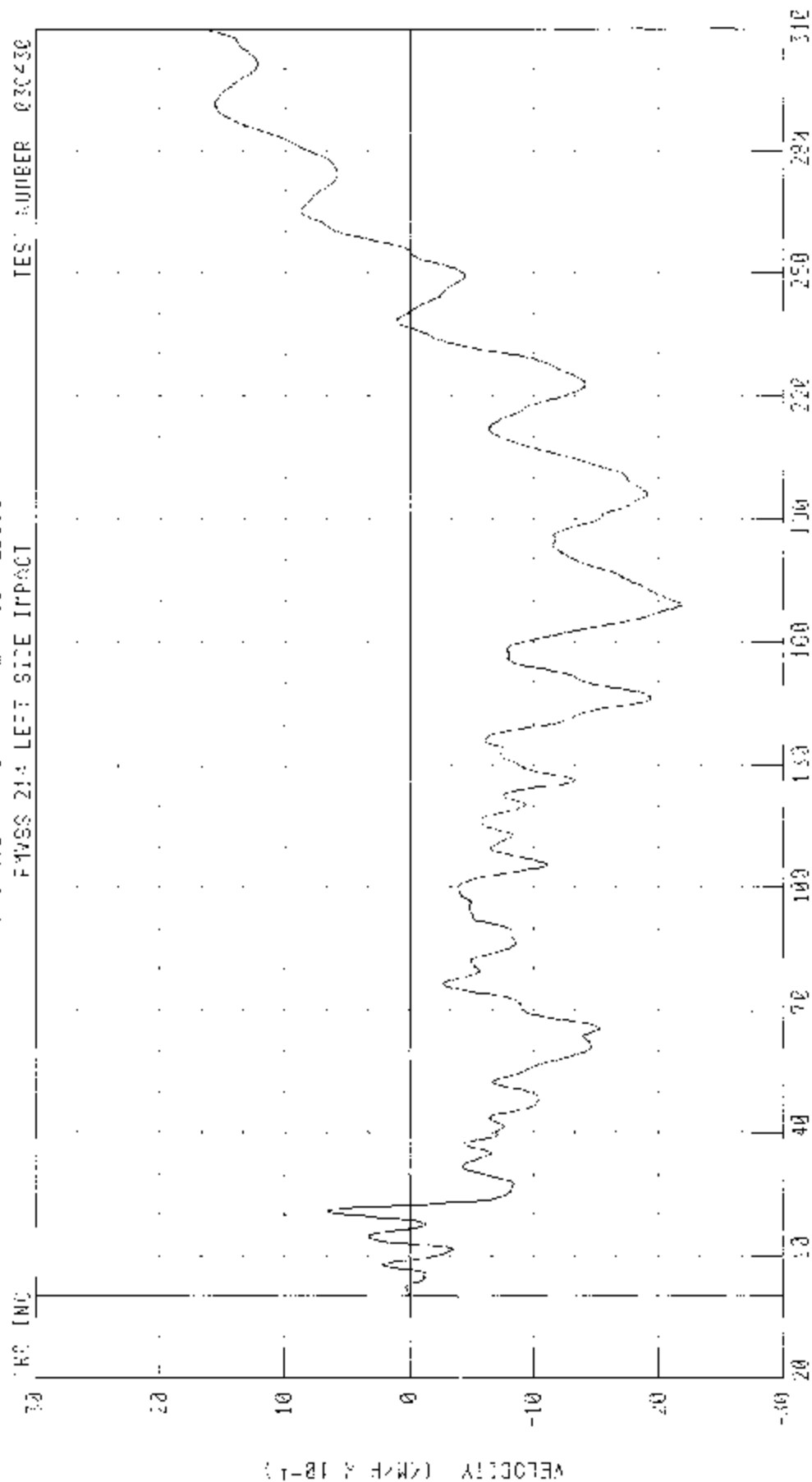
PEAK DATA = 02 G @ 230 96 MS, -0.25 G @ 22 96 MS

55-20 KPH 2P LEFT SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 ENH 325:

END CENTER OF GRAVITY Z-AXIS VELOCITY

FASS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



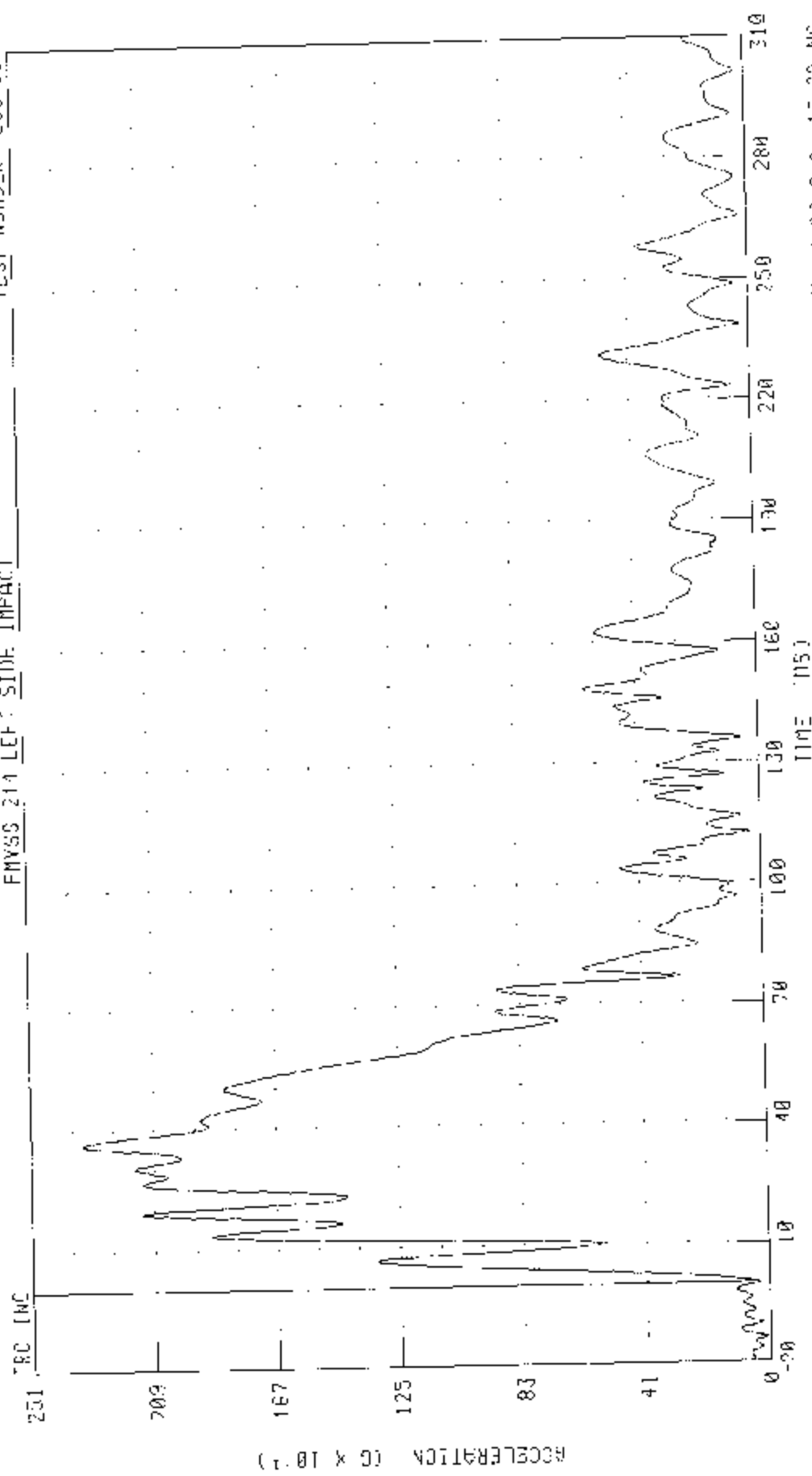
CHANNEL BCG/V: FILTER OF CLASS 150

PEAK DATA: 62 KPH @ 310 SEC, -2.19 KPH @ 169.12 SEC

55/70 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 320i
 HOB CENTER OF GRAVITY RESILIENT ACCELERATION

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

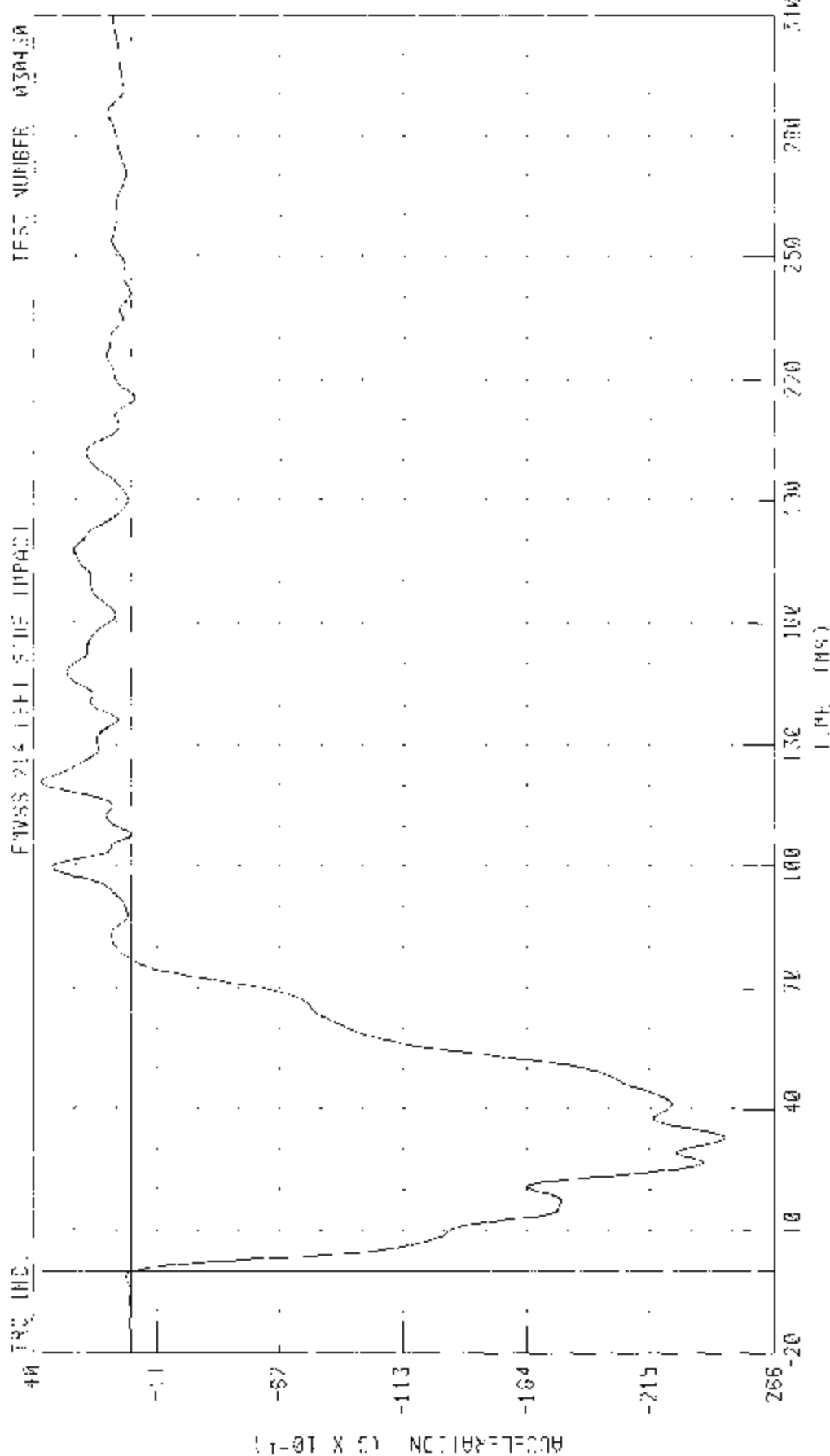
PEAK DATA: 23.4/ 58.38 MS, 0.20 G, 13.00 MS

CHANNEL: BCGRG; FILTER: CH CLASS: 00

ACCELERATION (G x 10⁻¹)

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL INTO LEFT SIDE 2003 31W 22S)

HUB LEFT REAR X AXIS ACCELERATION



CHANNEL 1 (REAR) FILTER CH CLESA 60

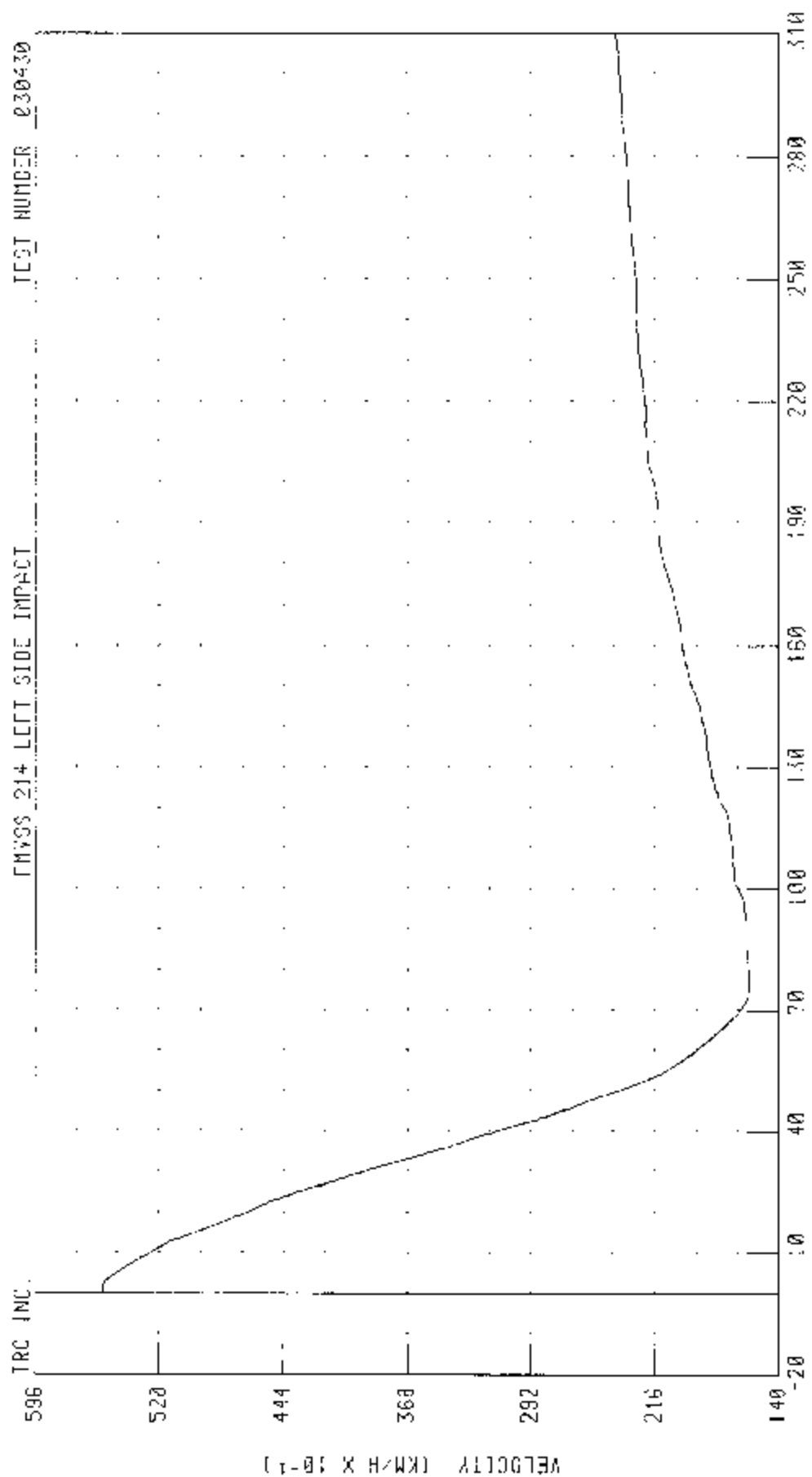
PEAK DATA 3.78 G @ 20.88 MS -24.53 G @ 33.12 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

MLB LEFT REAR X-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

CHANNEL LKRV1 FILTER CH. CLASS 180

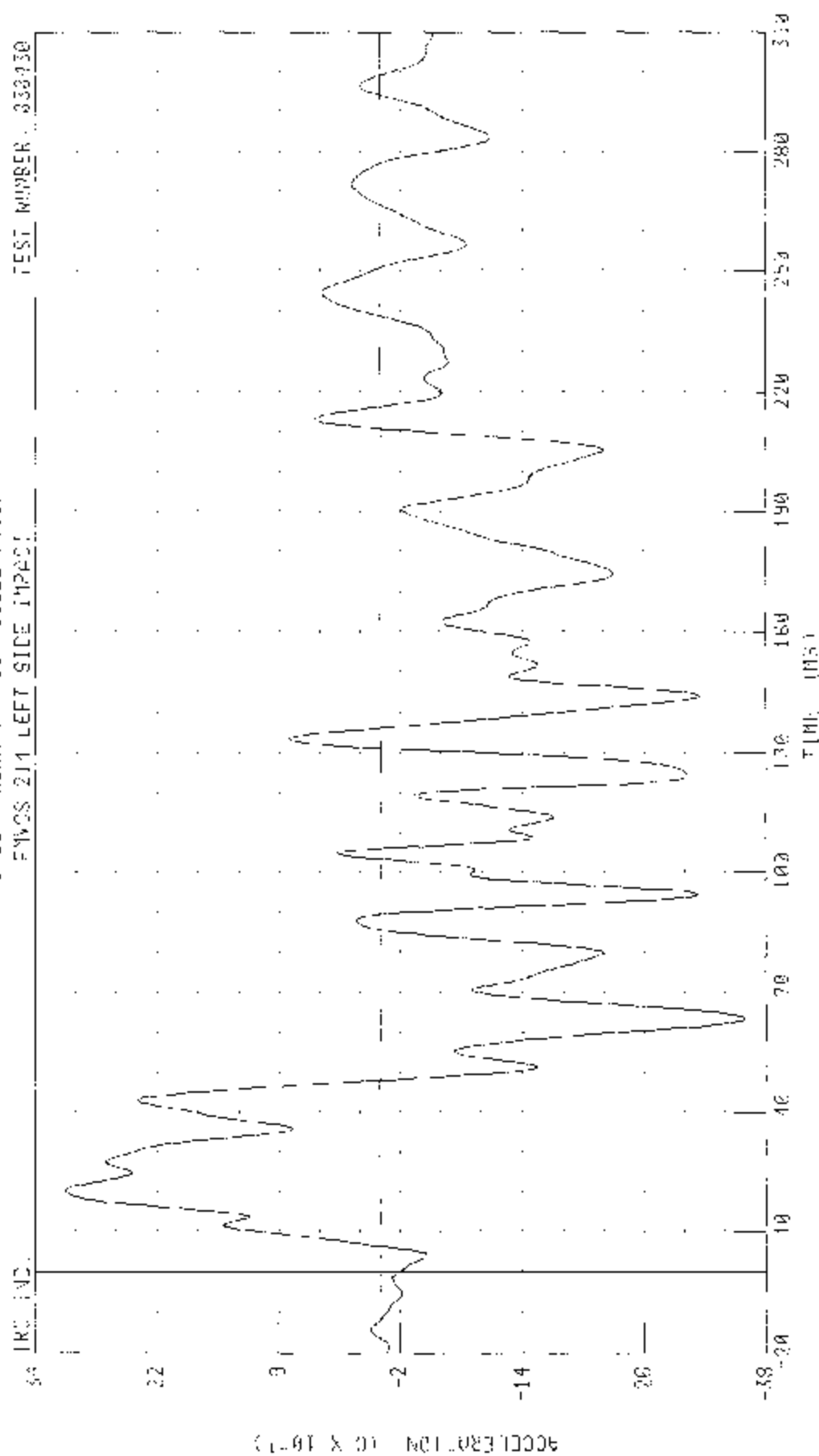
PEAK DATA: 55.42 KPH @ 1.76 MS. 15.77 G @ 77.63 MS

55/28 MPH 90 DEGREE SIDE IMPACT (MOVING DETECTABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

NO LEFT REAR Y AXIS ACCELERATION

EVOS 214 LEFT SIDE IMPACT

TEST NUMBER: 330430



CANAL _RRYS_ FILTER CH CLASS 60

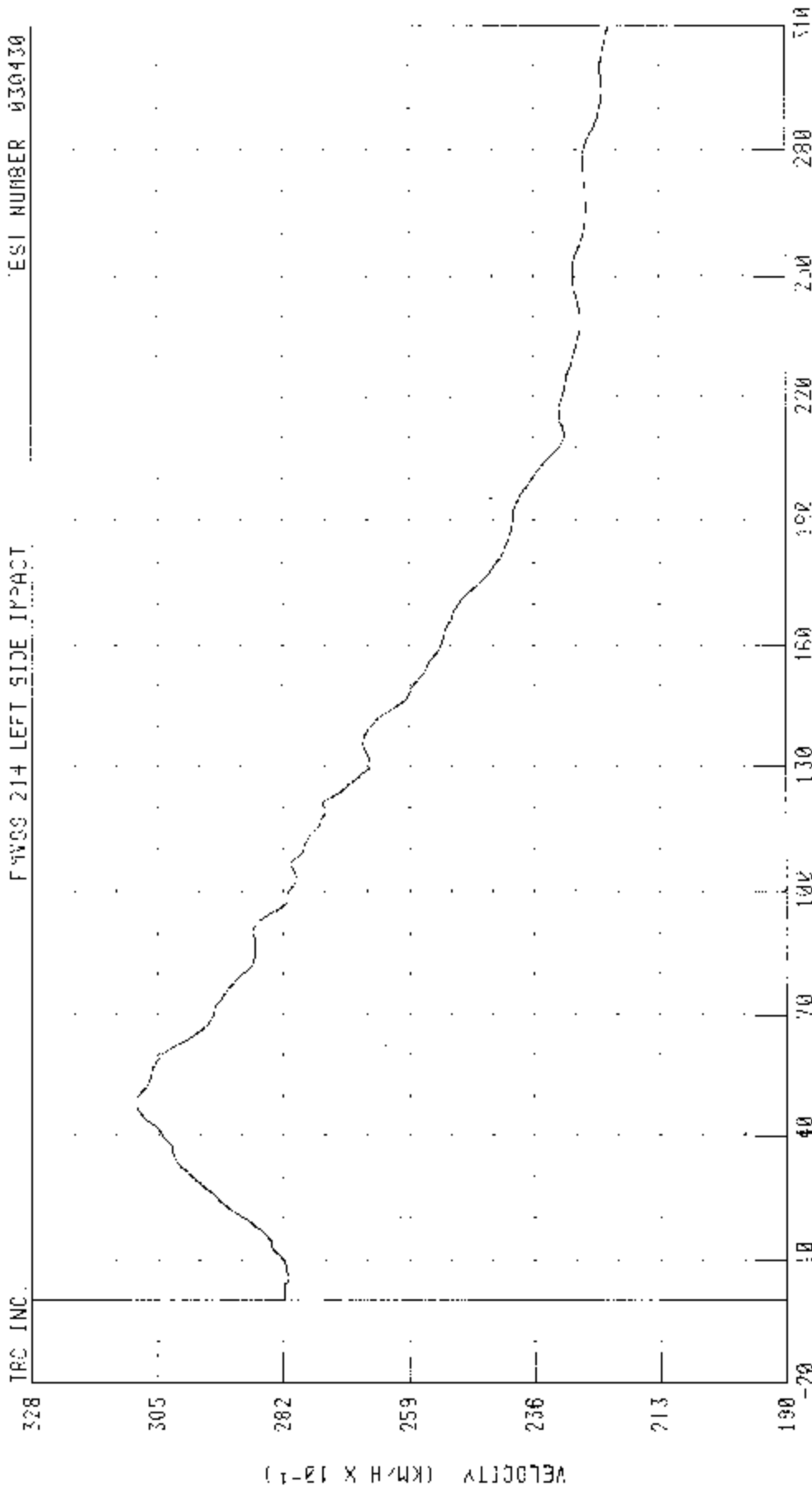
PEAK OUT: 3 0 0 20.32 MS -3.60 0 0 63.44 MS

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

MDX 1-F REAR Y-AXIS VELOCITY

FWSS 214 LEFT SIDE IMPACT

ESI NUMBER 030430



TIME (MS)

PEAK 3474 30 98 KPH @ 48.42 MS, 22 22 KPH @ 310 30 MS

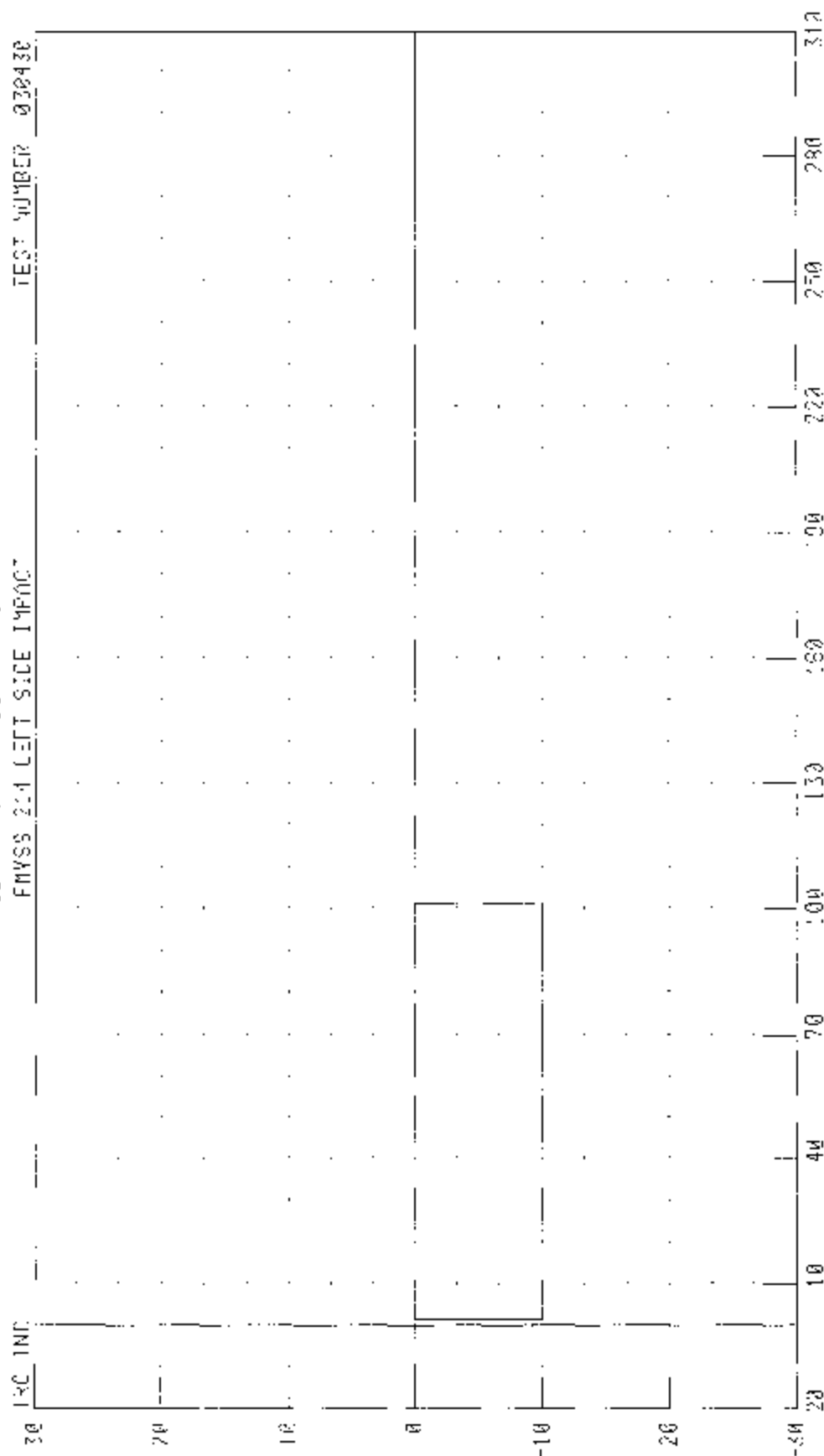
CHANNEL 1 RRYV1 FILTER: CIL CLASS 100

50/28 KPI 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BUW 3251

FOR RIGHT SIDE CONTACT WITH

FMVSS 224 LEFT SIDE IMPACT

TEST NUMBER 030430



TIME (MS)

CHANNEL MORE1 FILTER OF CROSS 1000

PEAK 130 IND 10.00 V @ 112.00 MS, -1.00 V @ 1.00 MS

55/28 KPI: 90 DEGREE SIDE IMPACT ("MOVING DEFORMABLE BARRIER") INH. EFF. SICE OF 2003 B'W 325)

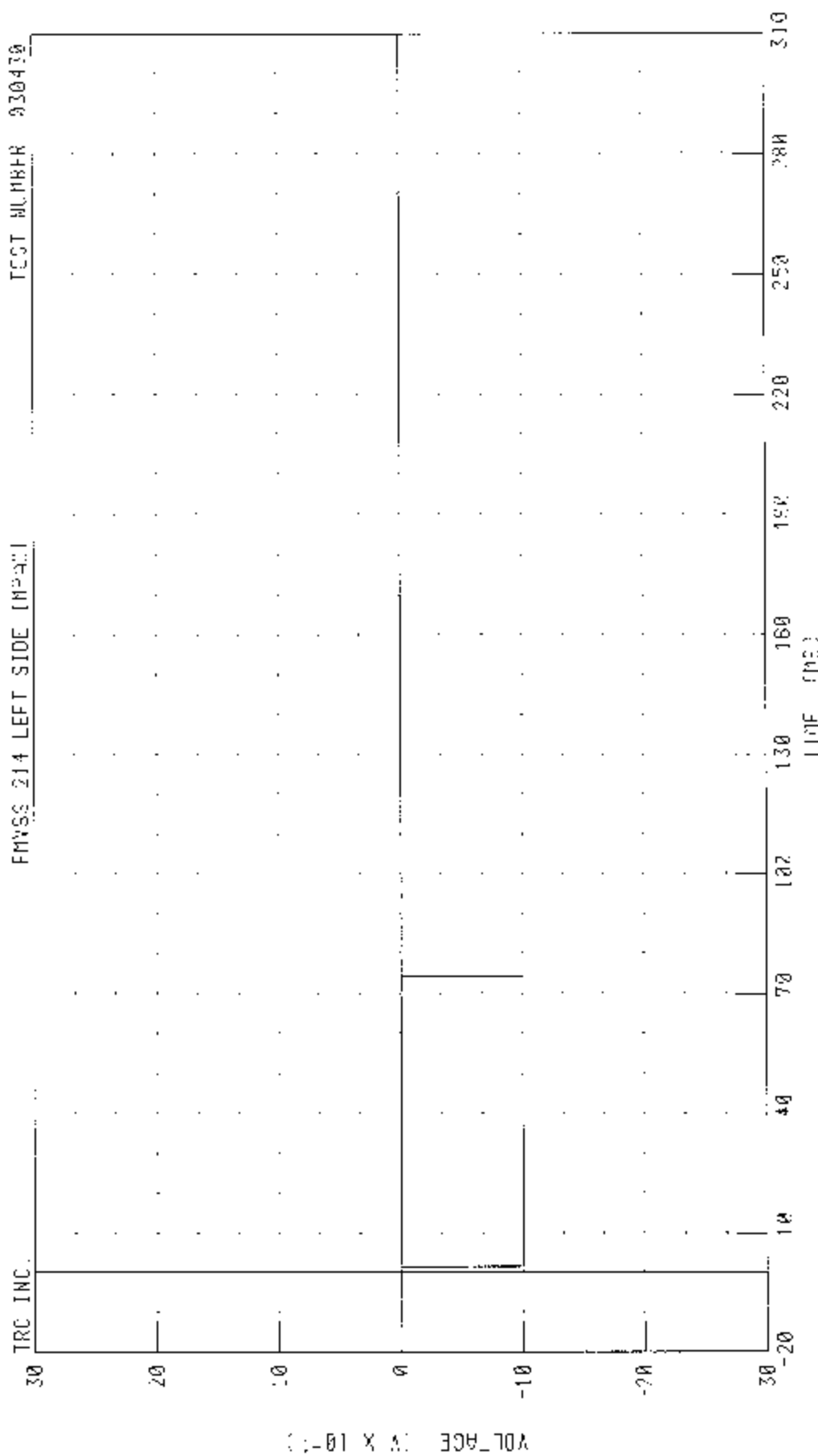
HOLDS LATCH CONTACT SWITCH

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

TEST ML 134-R

930479



CHANNEL: POELI FILTER: CH CLASS 1000

Price: £14.95 M 30 Y 2.710 MG PS, 100 Y 3 1.44 MS

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

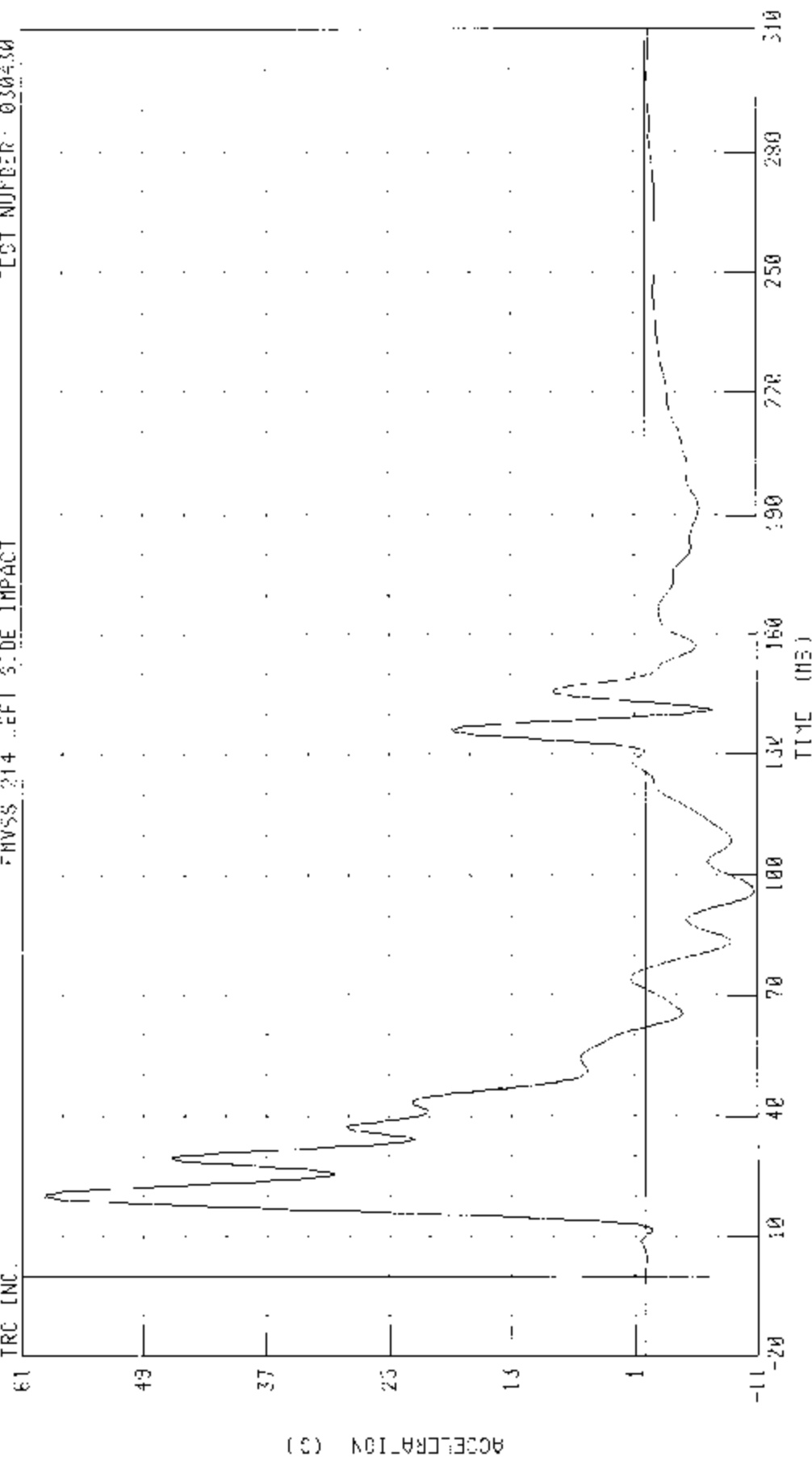
55.78 MPH 90 DEGREE STIFF IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER UPPER RIB Y AXIS ACCELERATION

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



TIME (MS)

CHANNEL: UR20 FILTER: FIR 100

PEAK DATE 58 82 6 8 20.22 43. 10.74 3 0 06.23 15

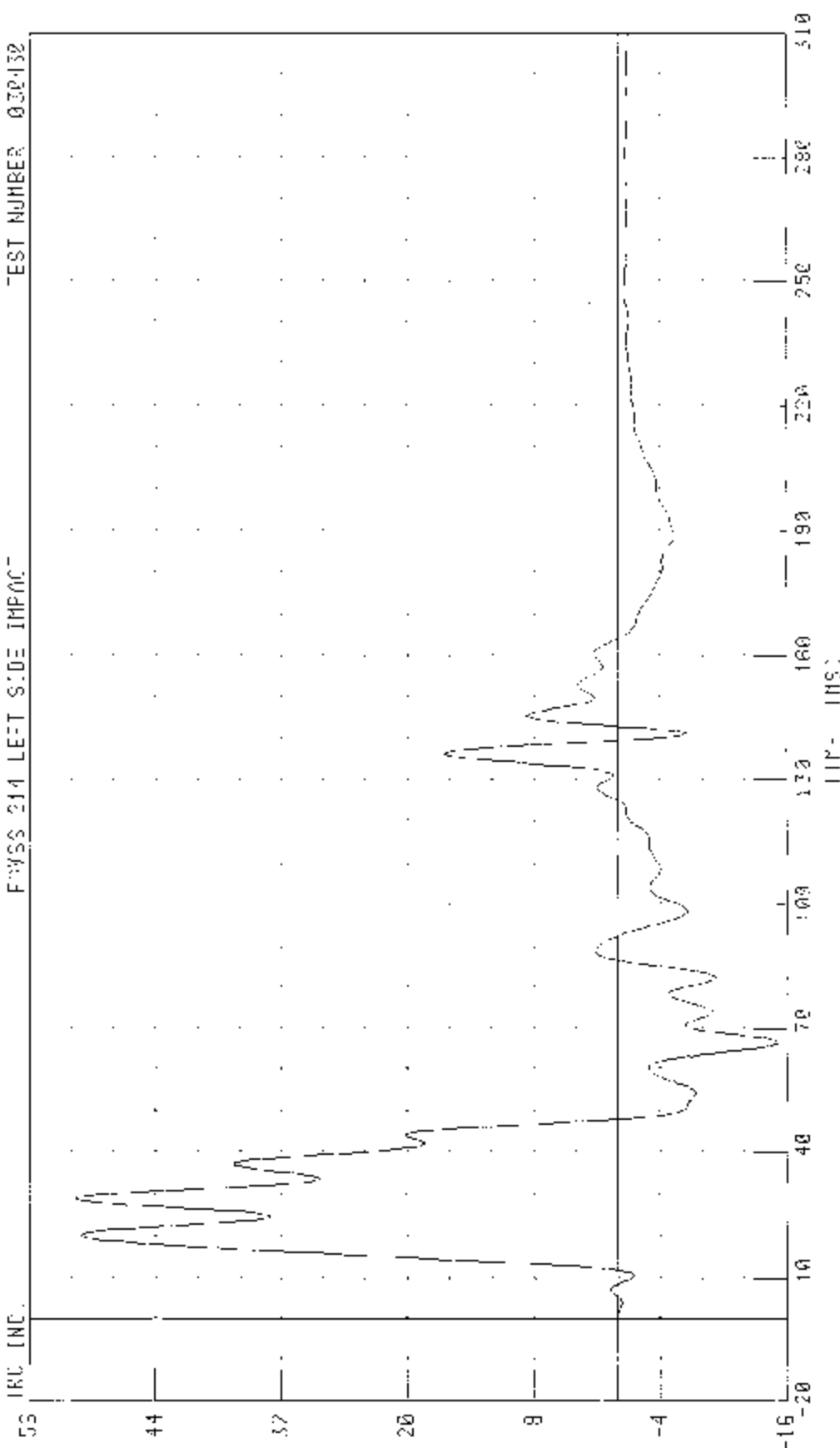
03/28 KP4 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BPX 3251

DRIVER LOWER RIB V AXIS ACCELERATION

TEST NUMBER 030430

FWSS 214 LEFT SIDE IMPACT

IRC (NC)



CHANNEL 1: L4951 FILTER: FIR 180

TIME: 03/28/03 15:18:25 MS

ACCELERATION (g)

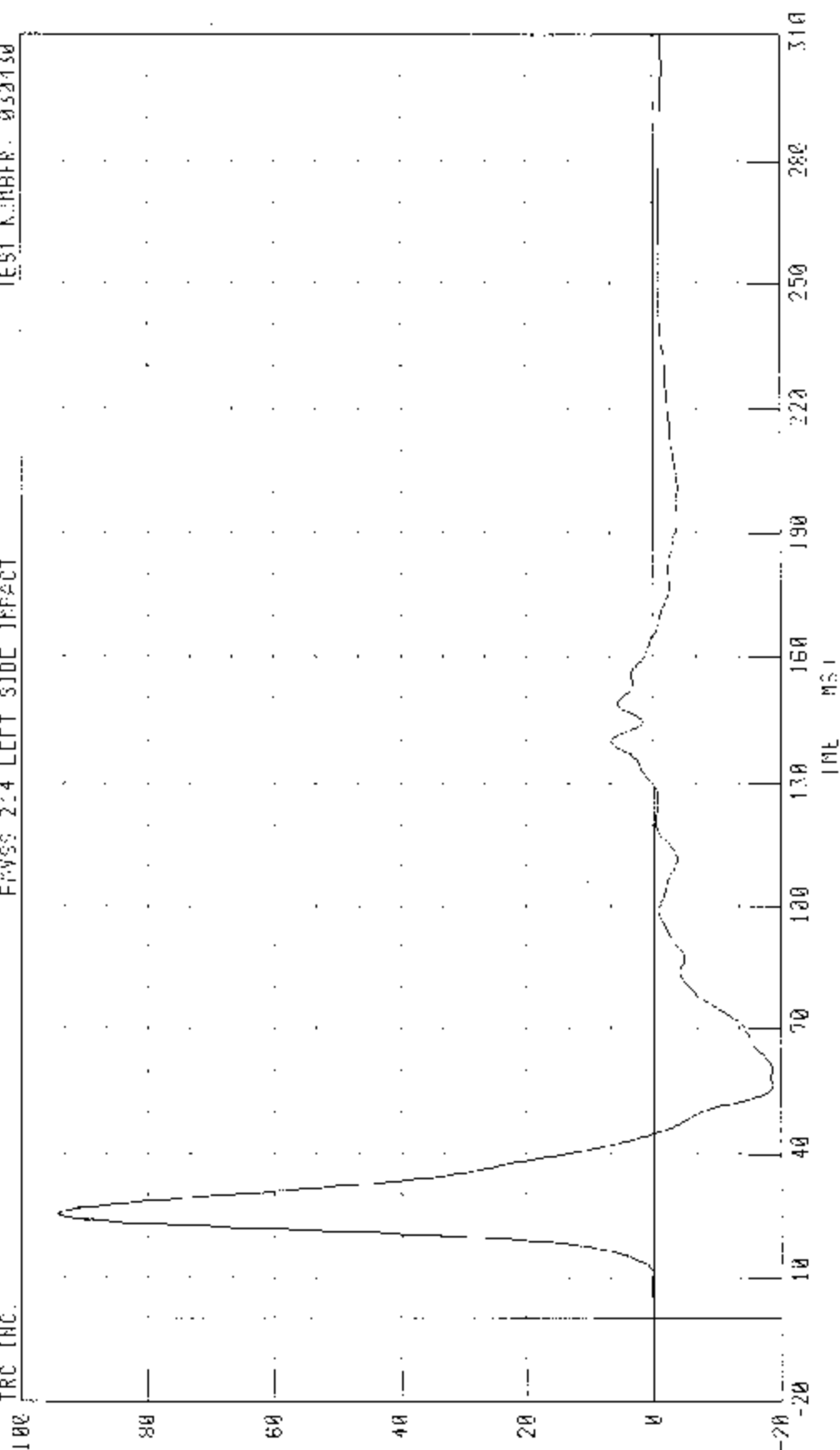
55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER: 030430

FRYSS 2:4 LEFT SIDE IMPACT

TRC INC.



ACCELERATION (G)

TIME (ms)

CHANNEL 112/61 FILTER: FIR 130

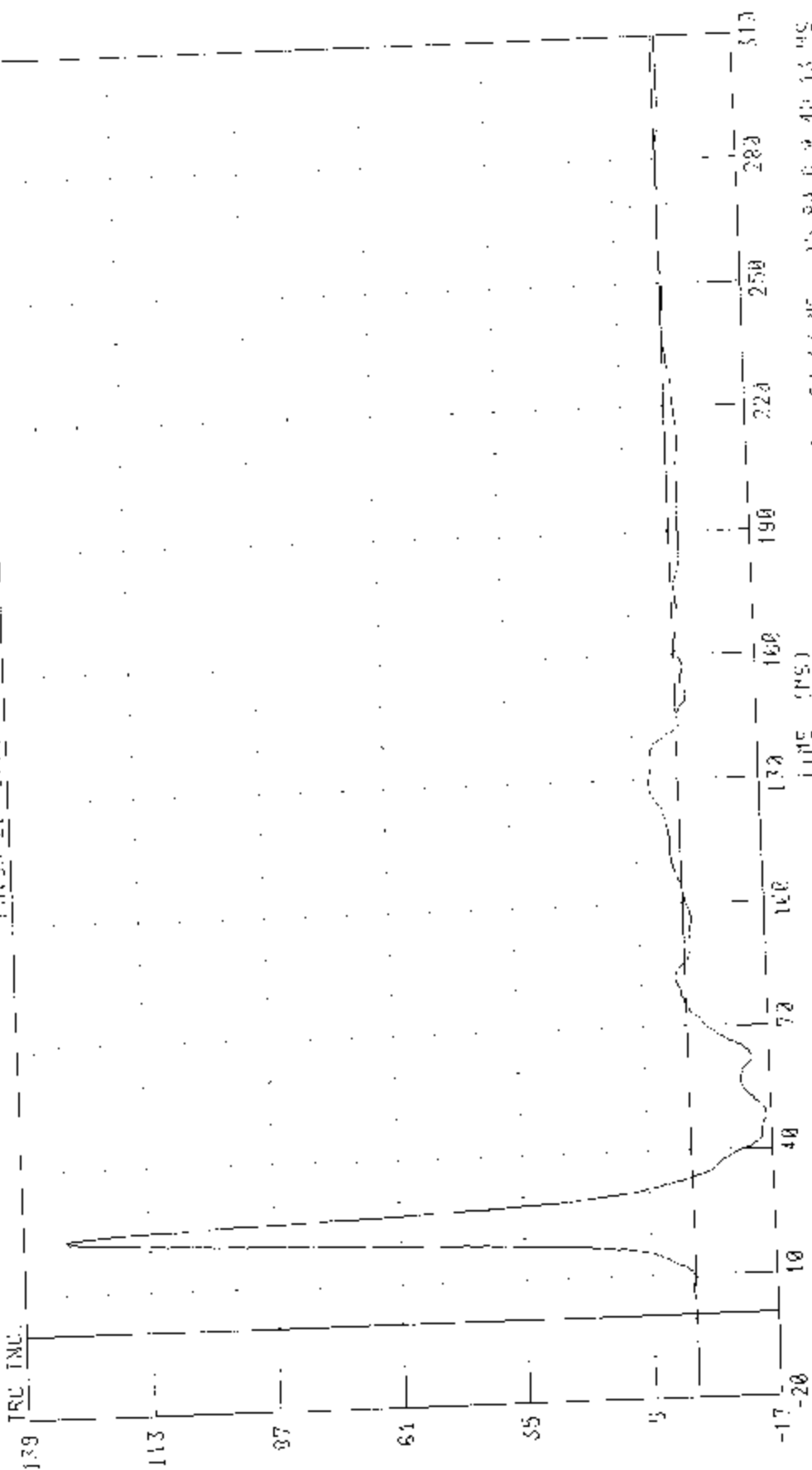
PEAK DATA: 94.38 G @ 25.63 ms, 10.52 G @ 60.52 ms

55/28 MPH 30 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER, INTO LEFT SIDE OF 2005 BMW 320I

DRIVER SEAT'S Y-AXIS ACCELERATION

TEST NUMBER: 030130

PHYS 214, FET SIDE IMPACT



CHANNEL: PEVY51 FILTER: F13 120

PLK DATA 130 29 5 25 11 MS: -10.84 0 30 13 MS

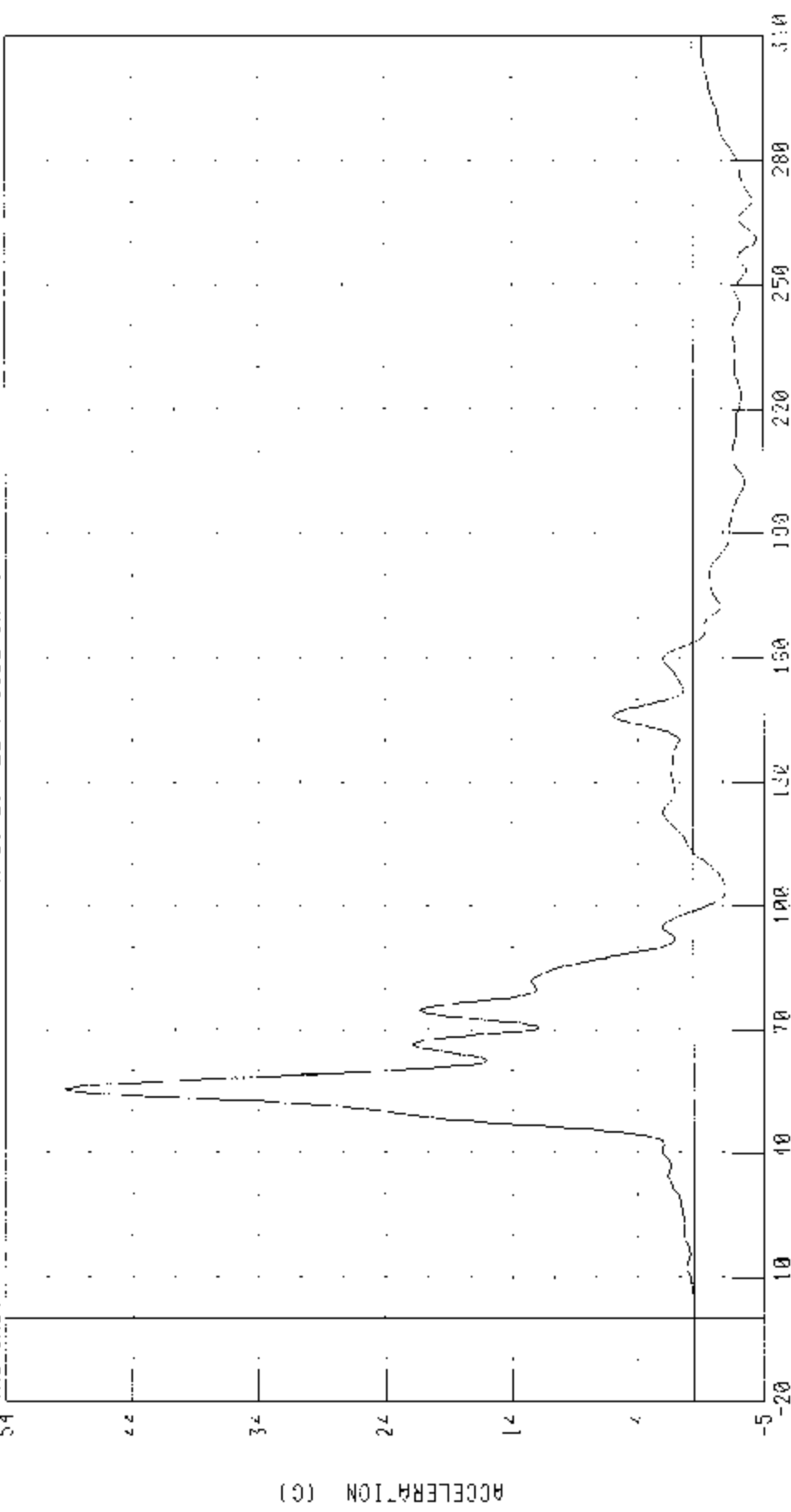
55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

LEFT REAR PASSENGER UPPER RIB Y AXIS ACCELERATION

TEST NUMBER: 030430

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



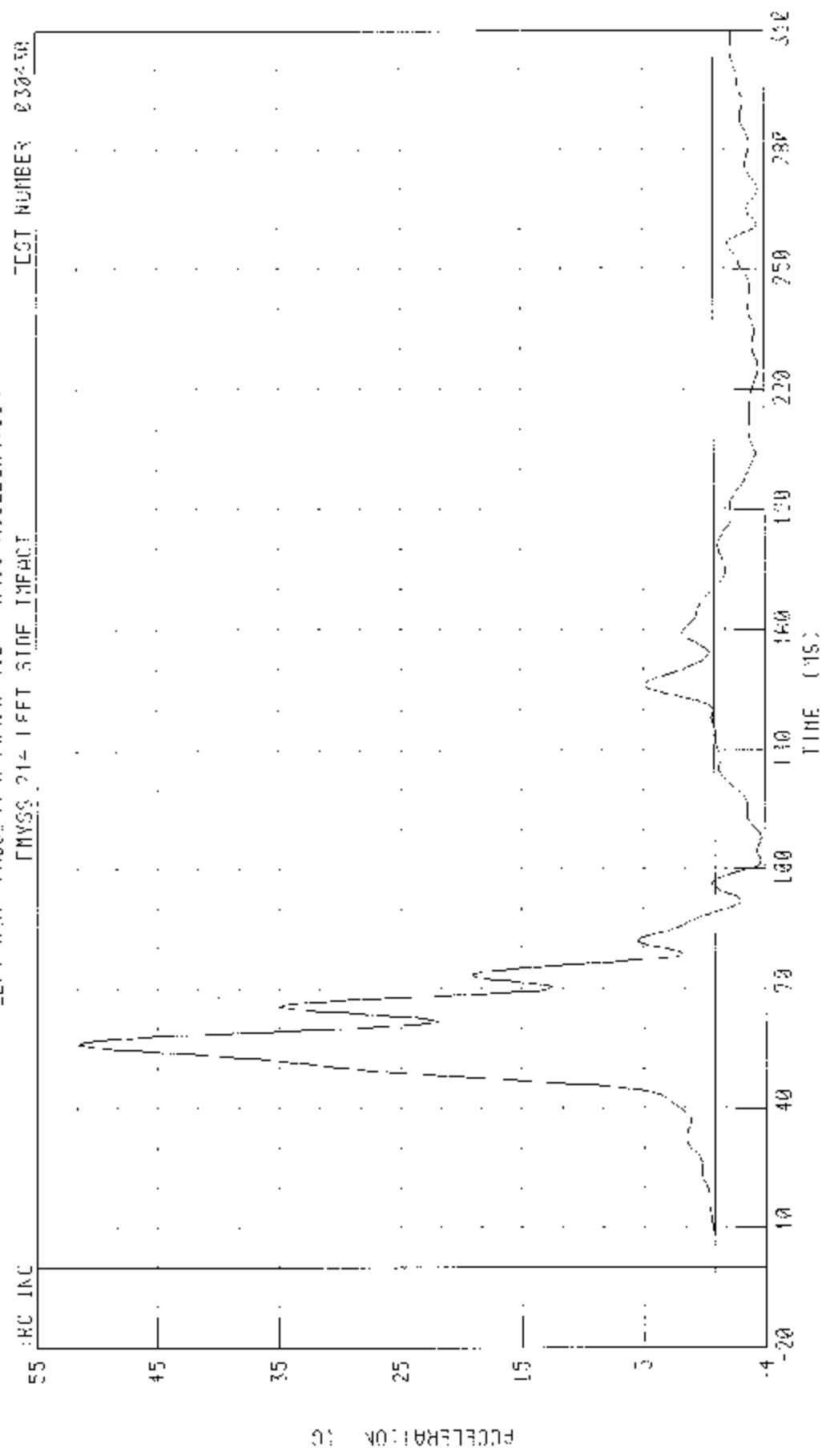
TIME (MS)

CHANNEL: FURY04 FILTER: FIR 100

PEAK DATA: 49.25 G @ 55.63 MS; -5.13 G @ 261.25 MS

35/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INITIAL SIDE OF 2003 DMV 3251

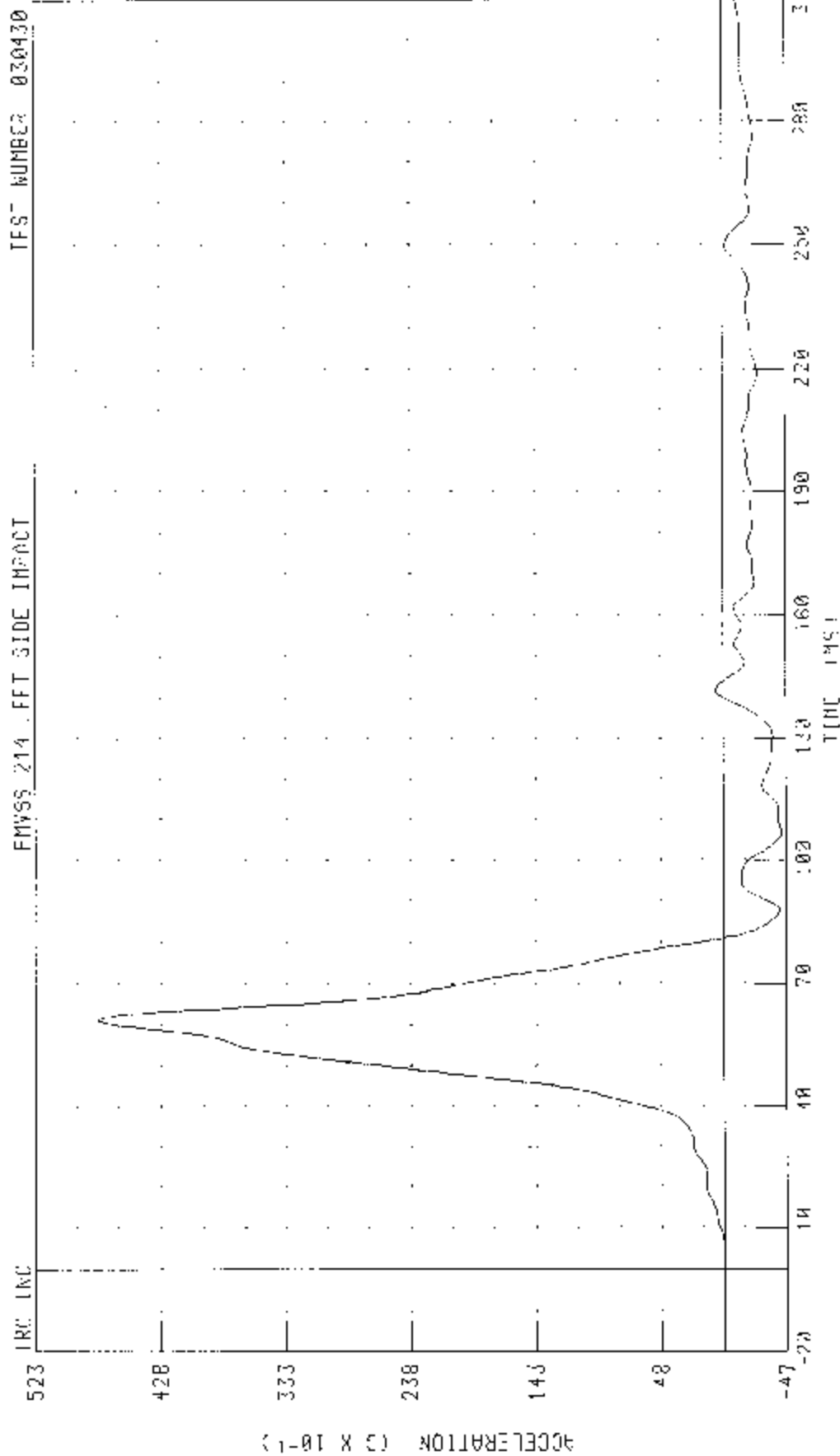
LEFT REAR PASSENGER-DOOR OVER RID X-AXIS ACCELERATION



CHANNEL LL2004 FILTER FIR 120

PEAK DATA 50.35 G @ 55.25 MS. -0.84 G @ 103.17 MS

55/23 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR R: INTO LEFT SIDE OF 2005 BMW 320i)
 LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION



CHANNEL: T12Y04 FILTER: FIR 100

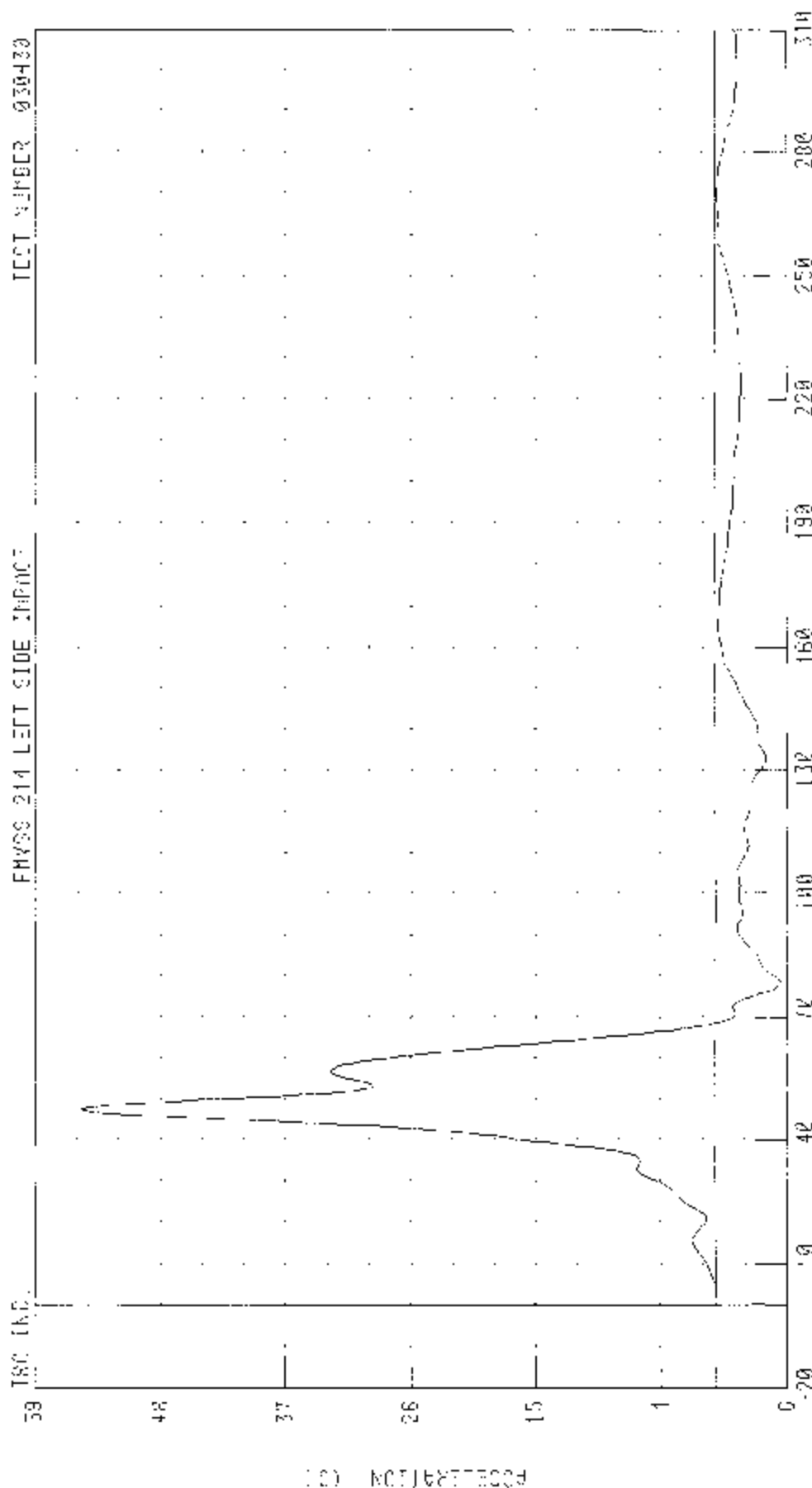
PEAK DATA: 47.54 G @ 61.25 MS, -4.32 G @ 185.87 MS

55/20 KPI 50 DEGREE SIDE IMPACT: MOVING DEFORMABLE BARRIER: INFO LEFT SIDE OF 2003 BSM 3251

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: PELVYG4 FILTER: 1K 100

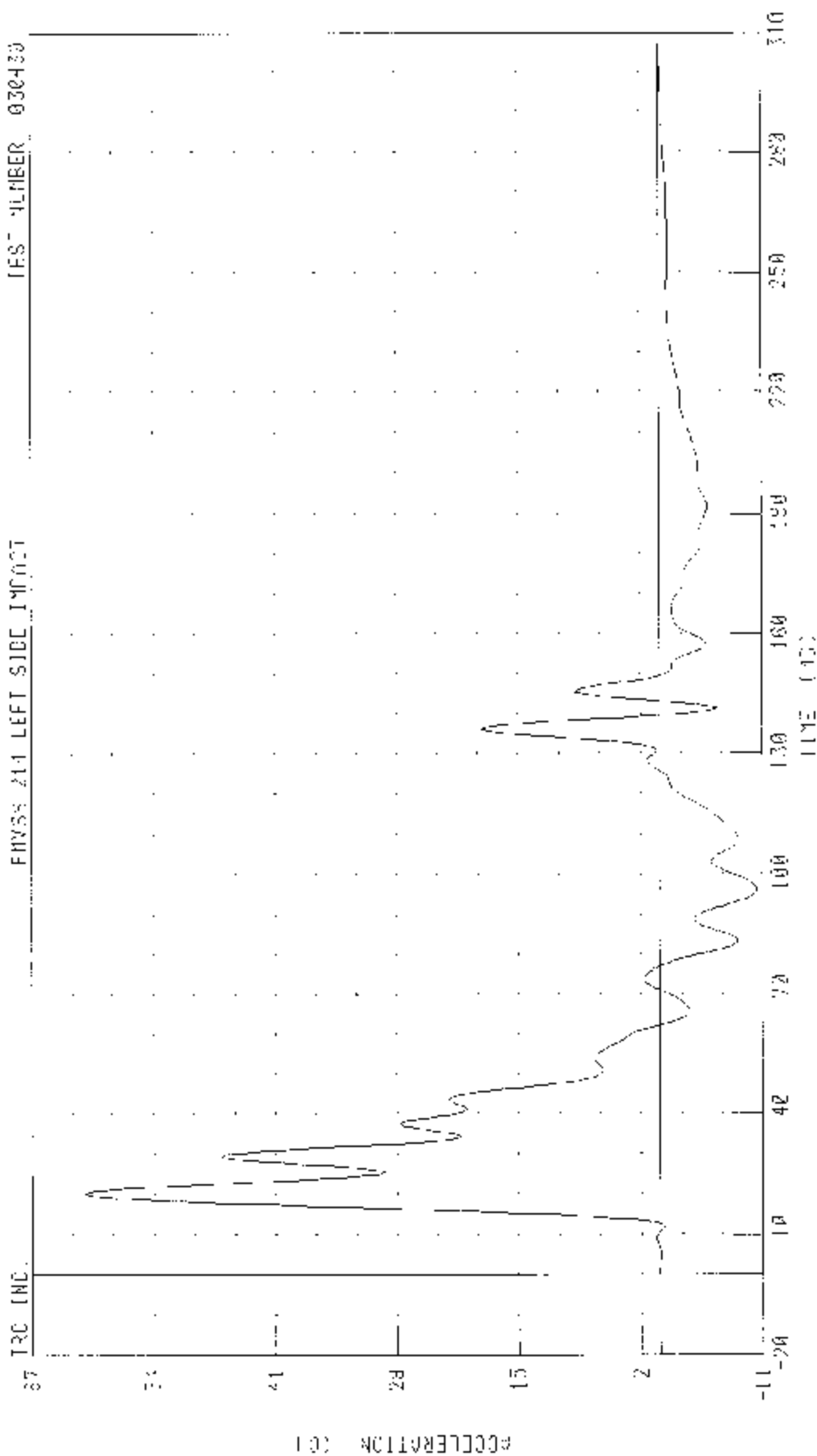
FILE: 0071 05:05:00 49.50 NS; -5.71 0.0 98.15 MS

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

55/28 KPH 90 DEGREE STIFF IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 70003 FTM 3253

DRIVER UPPER RIB 3-6X18 REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030430



CHANGES (URY2) FILTER 1K 100

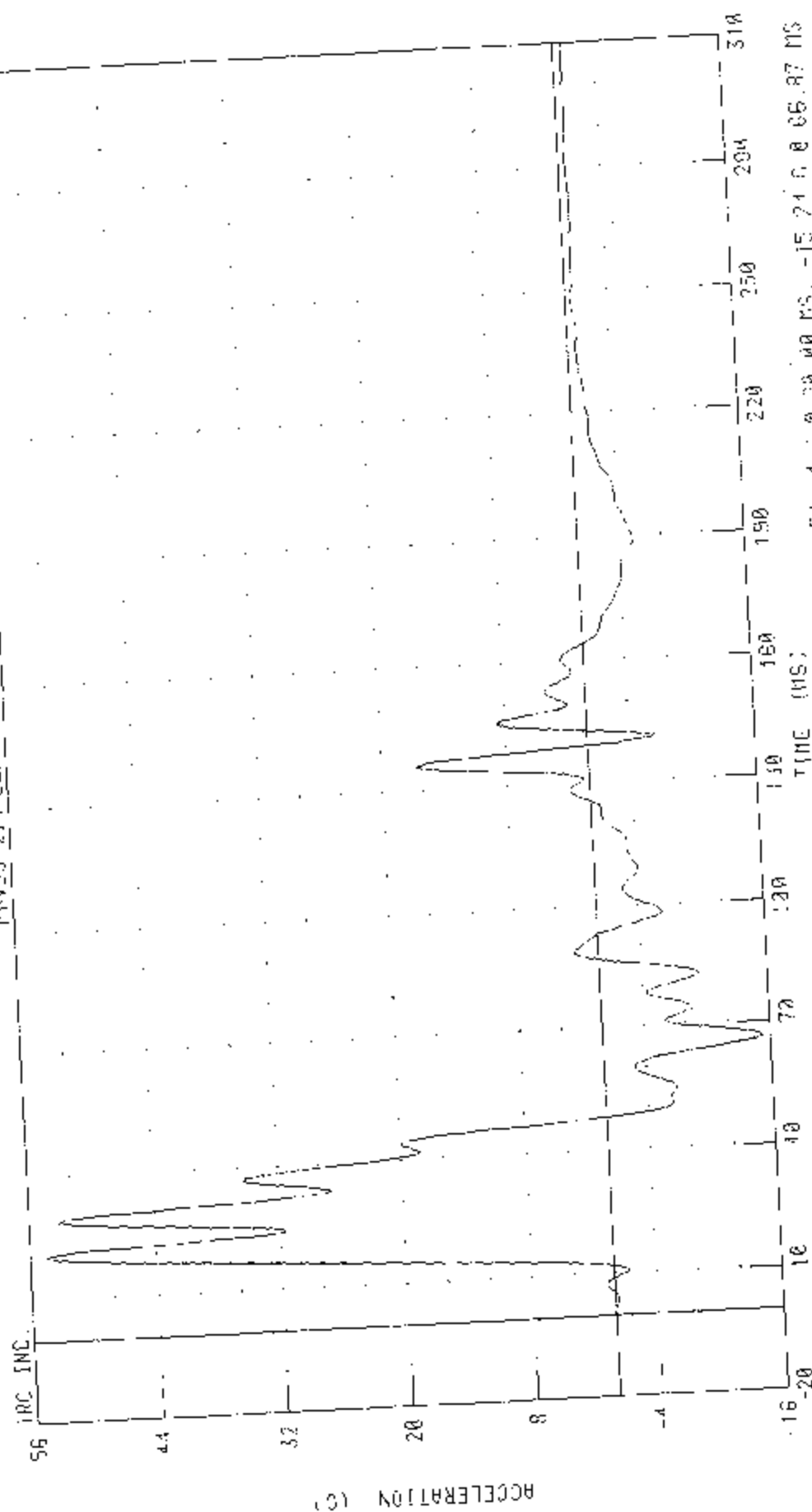
PEAK DATA 51 55 0 0 20 00 MS -10 43 0 00 25 35

55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 200.S. GHW 3251

DRIVER LOWER RIB Y AXIS REDUNDANT ACCELERATION

FW55 214 LEFT SIDE IMPACT

TEST NUMBER 030430



PEAK DATA 51 14 0 20.00 MS, -15 21 0 05.87 MS

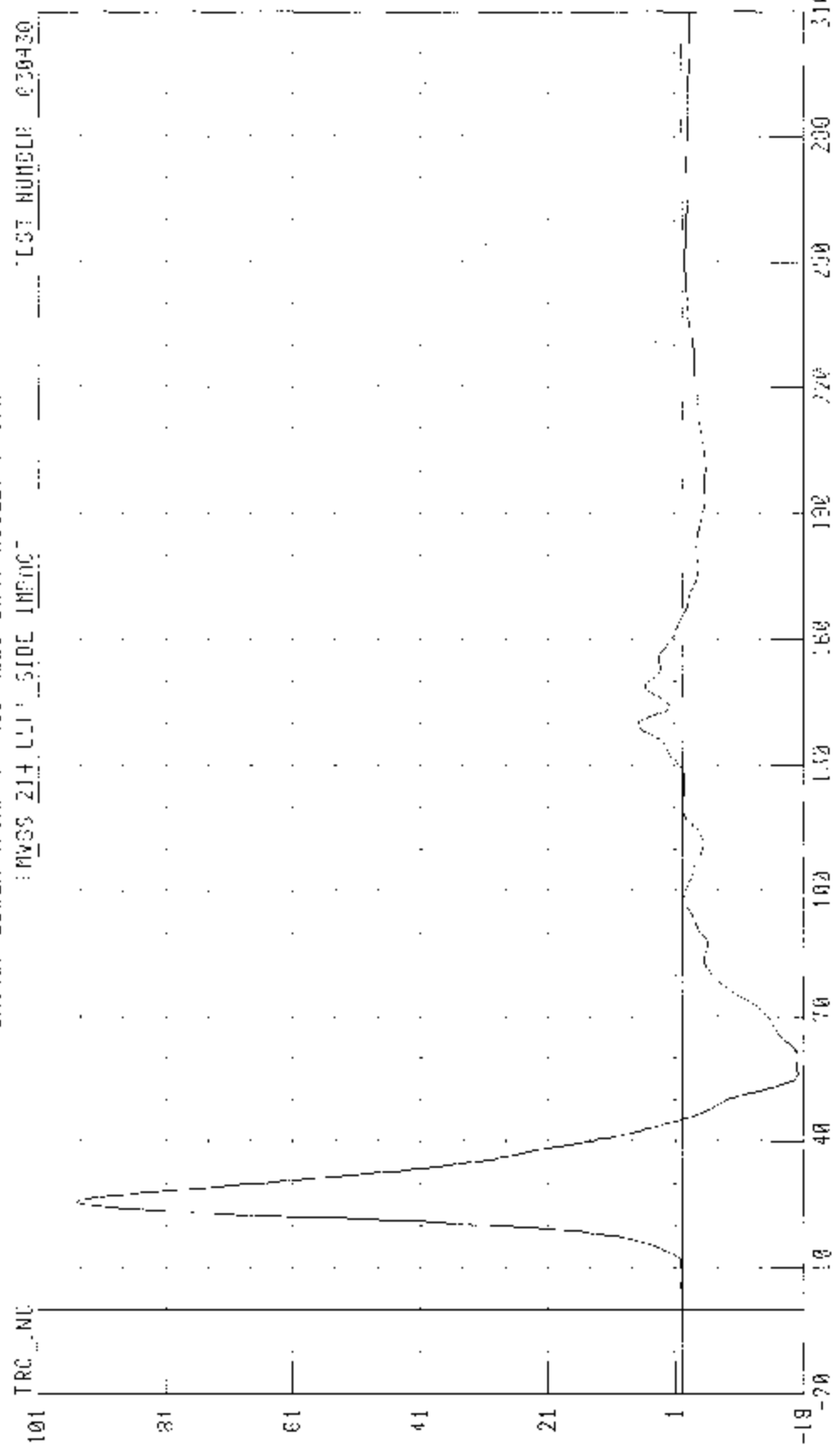
CHANNEL 11EYR1 FILTER CIR 100

55/20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARrier) INTO LEFT SIDE OF 2003 BMW 315i

DRIVER LOWER SPINE T-XIS RECDJDRNT ACCELFRF1.M

TEST NUMBER 030430

INVS 214 L11 SIDE IMPACT



CHANNEL: F12YPI FILTER F13 100

TIME (MS)

PLAK DATA 04 01 0 20.00 MS 18 11 0 0 00 00 MS

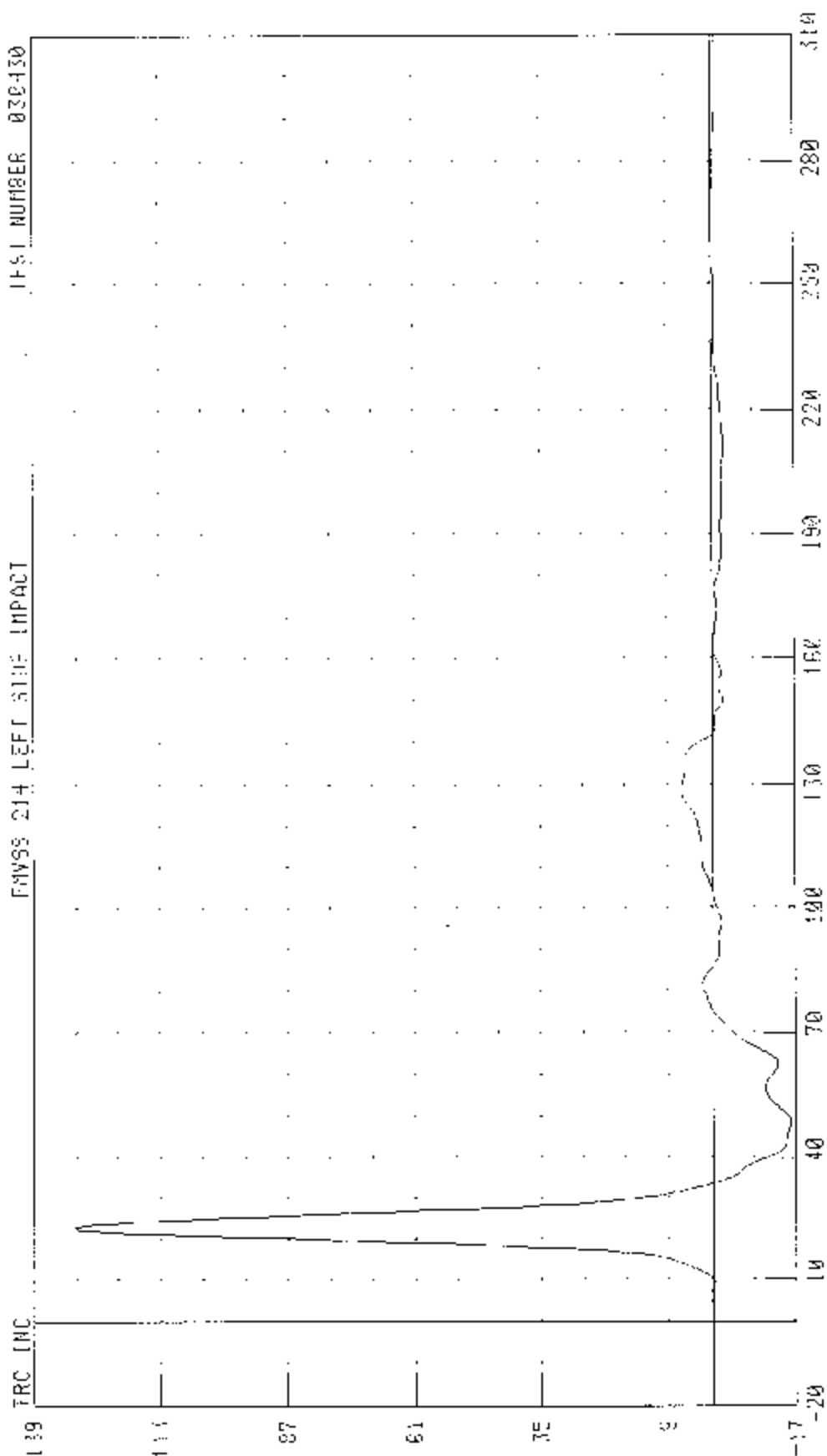
55/28 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i

DRIVER PELVIS Y AXIS REDUNDANT ACCELERATION

TRC INC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030430



ACCELERATION (G)

TIME (MS)

CHANNEL PELVIS1 FILTER FIR 100

PEAK DATA 139.78 G @ 25.13 MS, 16.91 G @ 48.13 MS

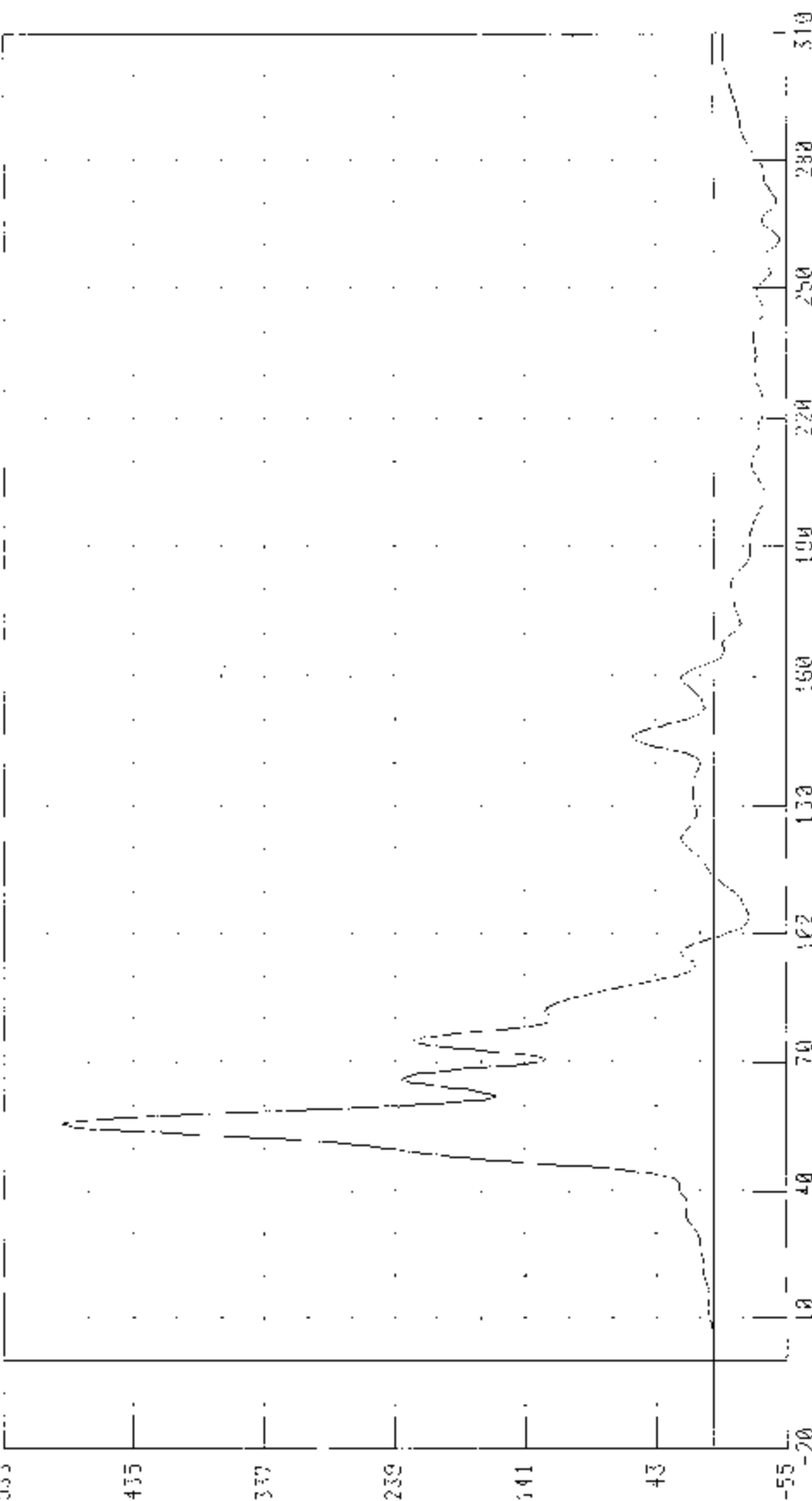
05/28 KPA 90 DEGREE SIDE IMPACT (MOVING REFORMABLE PARALLEL INTO LEFT SIDE OF 2001 BMW 325I)

LEFT REAR PASSENGER UPPER RIR Y-Axis REBOUND (ACCELERATION)

180 INCH. 033 435 330 230 141 43 -55

00000 214 LEFT SIDE IMPACT

TEST NUMBER: 030430



TIME (MS)

CHANNEL: L00Y24 FILTER: FIR 100

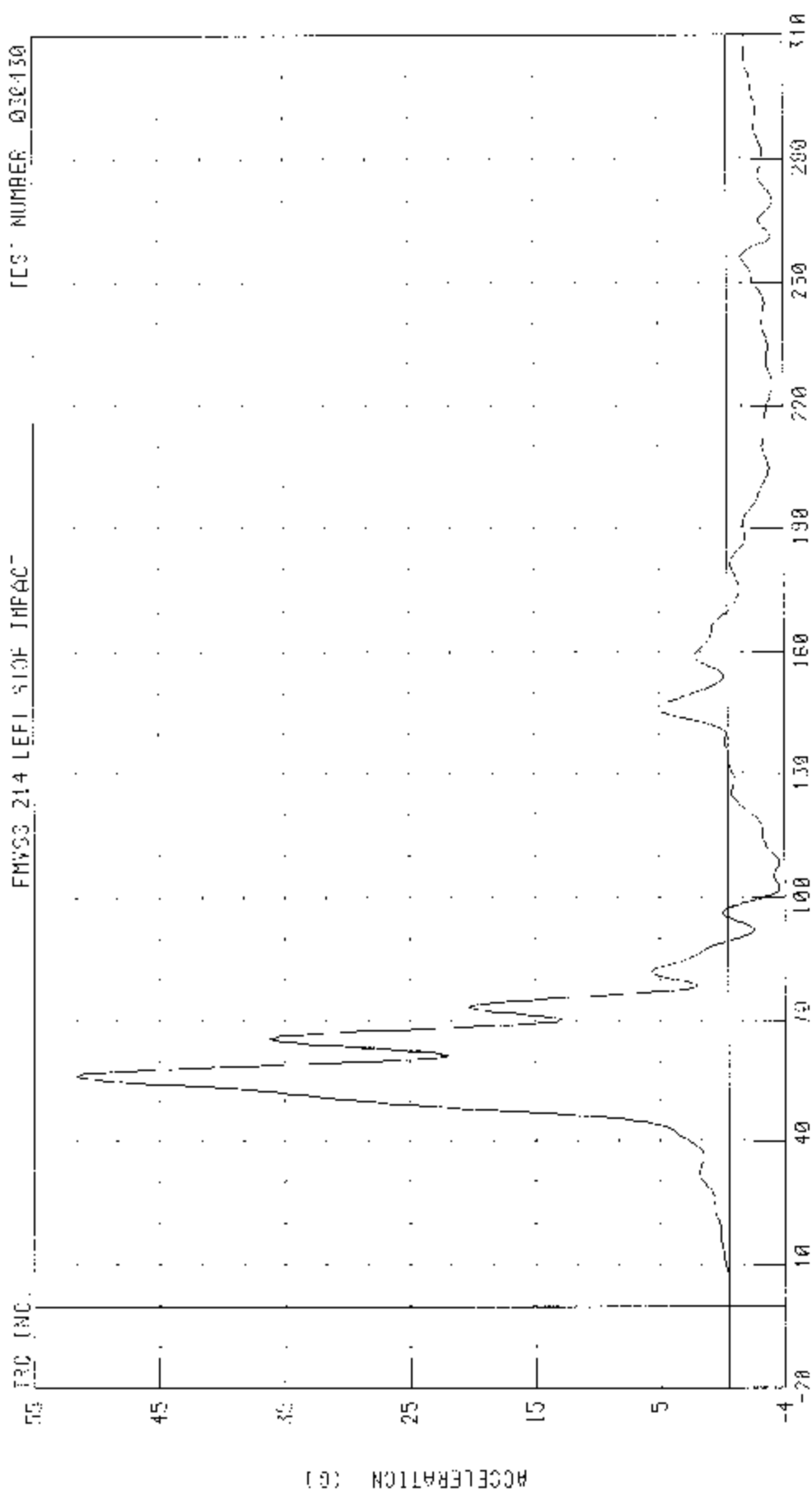
REF DATA: 49 81 0 0 15 63 19; 15 05 0 0 261 20 103

55/26 KPH 90 DEGREE SIDE IMPACT (MOVING DETACHABLE BARRIER) INTO LEFT SIDE OF 2002 BMW 325i

LEFT REAR PASSENGER LOWER RIB V-AXIS REDUNDANT ACCELERATION

TEST NUMBER 030430

FMVSS 214 LEFT SIDE IMPACT

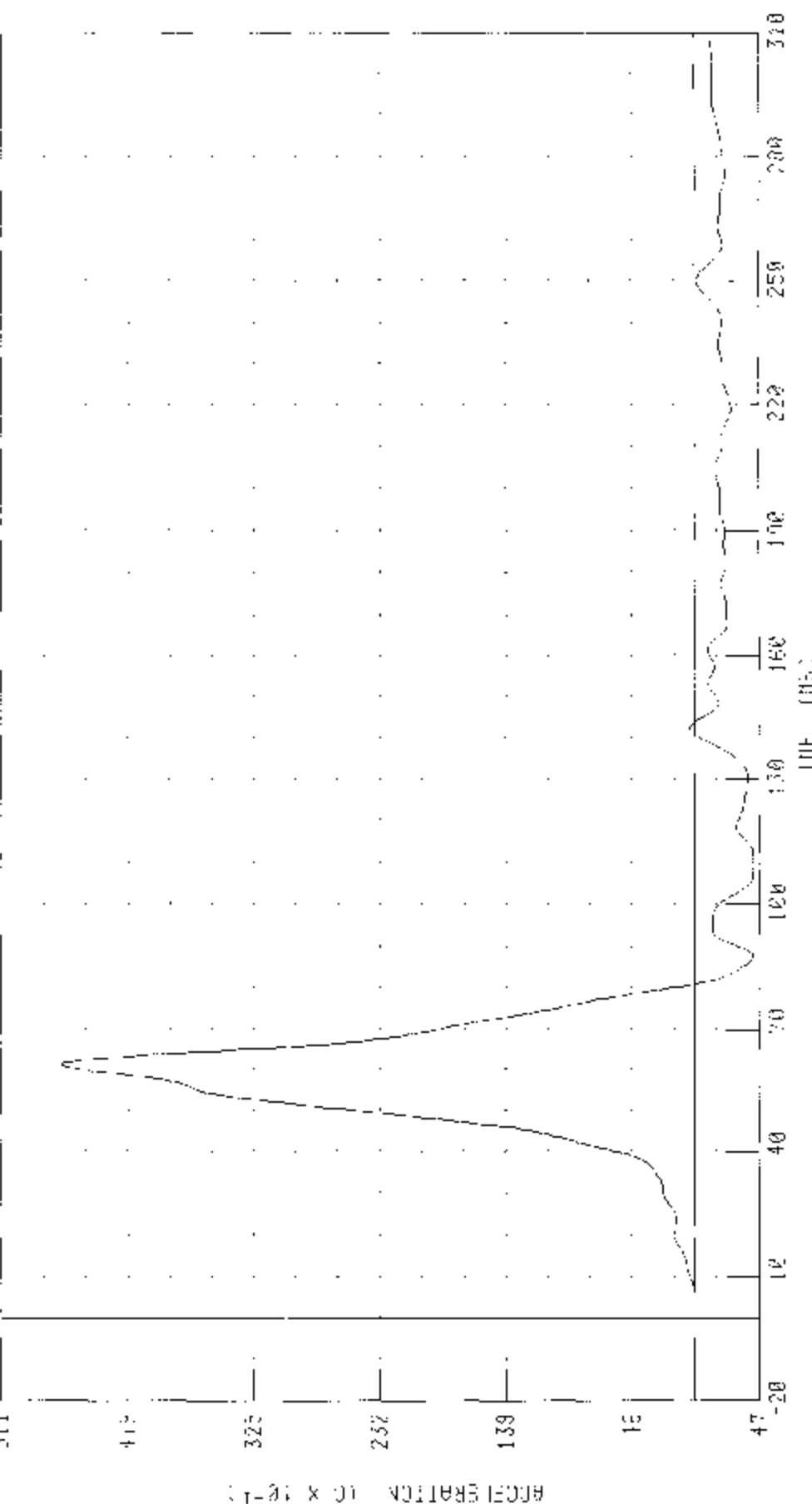


CHANNEL LRV34 FILTER FIR 102

PEAK DATA 52.11 G @ 56.25 MS; -2.11 G @ 182.50 MS

55/20 <F> 00 CIGRELL SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 2005 BMW 325I
 LEFT REAR PASSENGER LOWER SPINE V-Axis REBOUND COLLECTION

TRC INC. 511 FMS 214 LEFT SIDE IMPACT TEST NUMBER 030430

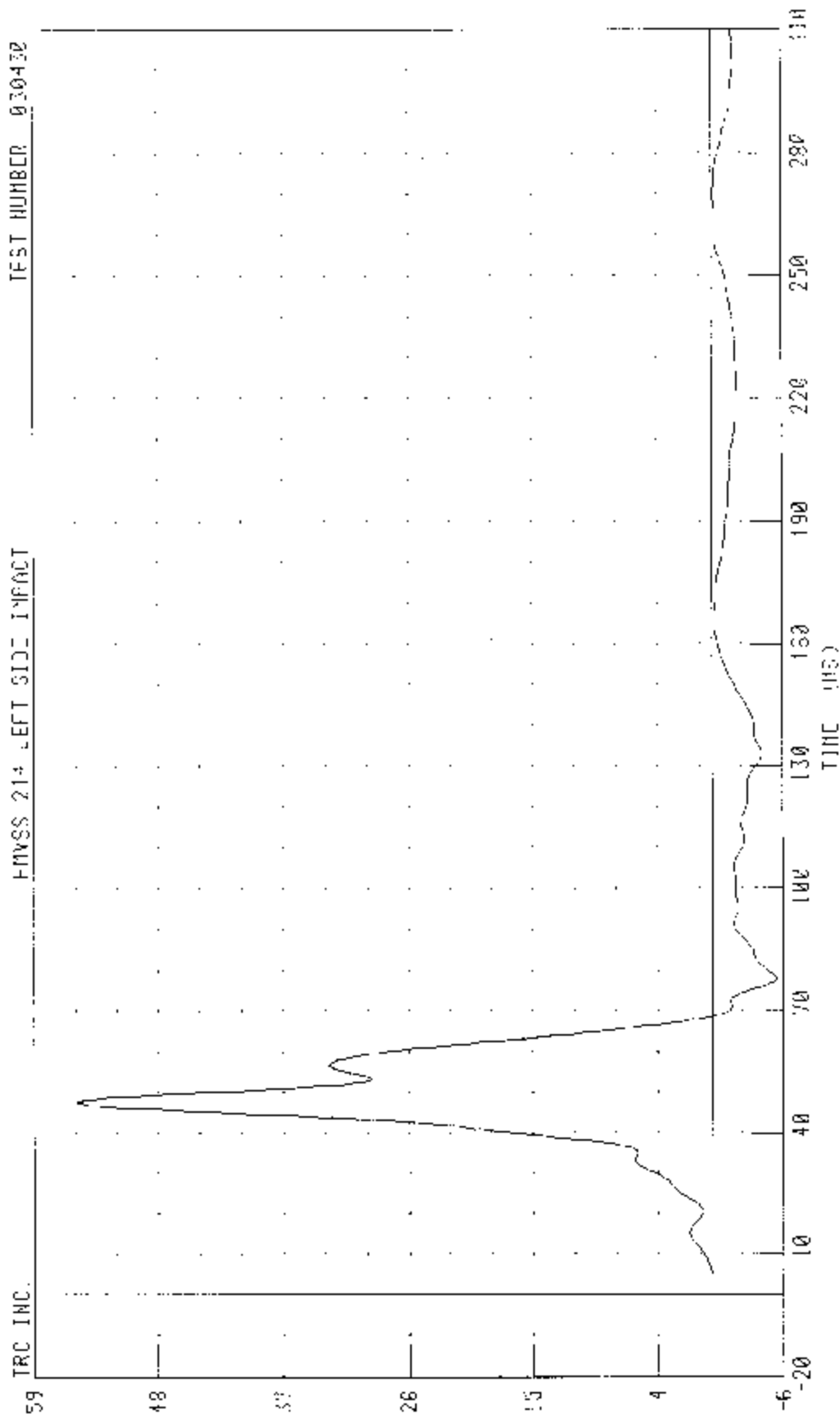


CHANNEL 112V-4 FILTER FIR 120

FIX DATE 16 01 00 01 25 15. 4 35 00 07 00 MS

55/28 MPH 90 DEGREE STIFF IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 BMW 325i
 LEFT REAR PASSENGER SEAT V15 Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030430



CHANNEL1 PEVYR4 FILTER: 11K 100

PEAK DATA 55.07 G @ 47.50 MS, -5.67 G @ 281.10 MS

ACCELERATION (G)

Appendix C

SID Configuration and Performance Verification Data

Summary
SID Pre-Test and Post-Test Calibration
Configured For Left Side Impact

Date: April 16-May 1, 2003 TRC Inc. Test Number: 028C05/C06 & 065C09/C10
Laboratory Technician: Jack Willeke & Chris Roberts

Test Parameter	Specification	SID 028		SID 065	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - Seated Height (mm)	889-909	895	895	896	897
RH - Rib Height (mm)	502-520	503	504	510	511
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1	99.1	99.1
RD - Rib from Back Line (mm)	229-241	231	230	239	238
KV - Knee Pivot from Back Line (mm)	511-526	514	512	513	512
KH - Knee Pivot to Floor (mm)	490-505	499	498	500	499
HW - Hip Width (mm)	356-391	372	372	371	371
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.7	21.7	21.1	22.2
Relative Humidity (%)	10-70	32.0	43.0	26.0	43.0
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.25	4.31
Upper Rib (g's)	37-46	42.0	40.0	40.2	44.5
Lower Rib (g's)	37-46	41.4	42.6	39.1	43.9
Lower Spine (g's)	15-22	17.5	17.5	20.1	21.0
Pelvis Impacts					
Temperature (°C)	18.9-25.5	22.2	21.7	21.1	22.2
Relative Humidity (%)	10-70	41.0	43.0	25.0	43.0
Probe Speed (m/s)	4.27-4.33	4.30	4.29	4.26	4.28
Pelvis (g's)	40-60	48.4	47.6	50.9	54.5

Calibration Test Results

Pre-Test

SID: 028

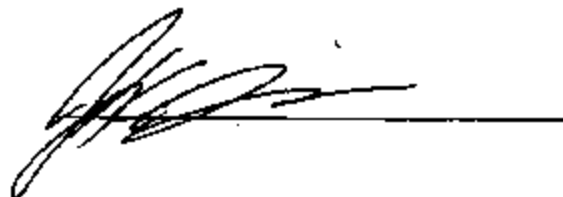
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements (tested on February 3, 2003 for a previous calibration series).
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

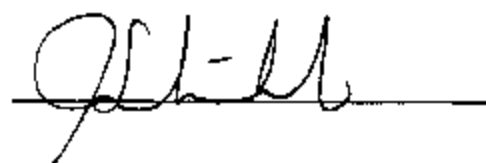
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 028 Calibration No. 05

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	503 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	231 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	514 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	171 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	170 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		\leq 2.5 mm	1.0 mm	Yes

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL HEAD DROP TEST

SID/HIII DUMMY

16-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. HDL02805

572M SID/HIII SN028 HEAD CAL05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	22.22 deg. C
RELATIVE HUMIDITY	10 - 70 %	41.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	149.76 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	-9.66 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 042803.0635;1

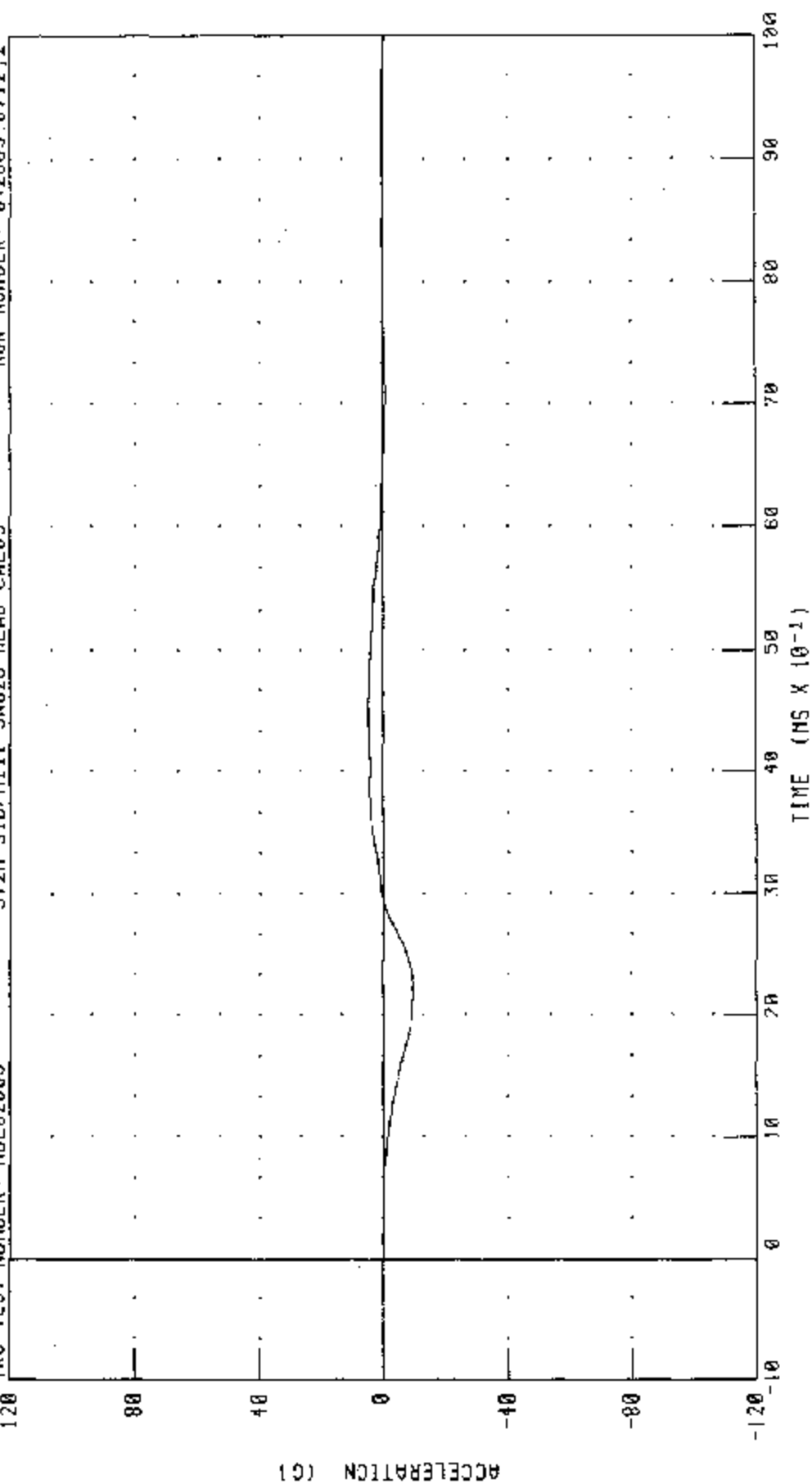
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: HDL02805

572M SID/HIII SN028 HEAD CAL05

RUN NUMBER: 042803 0712.2



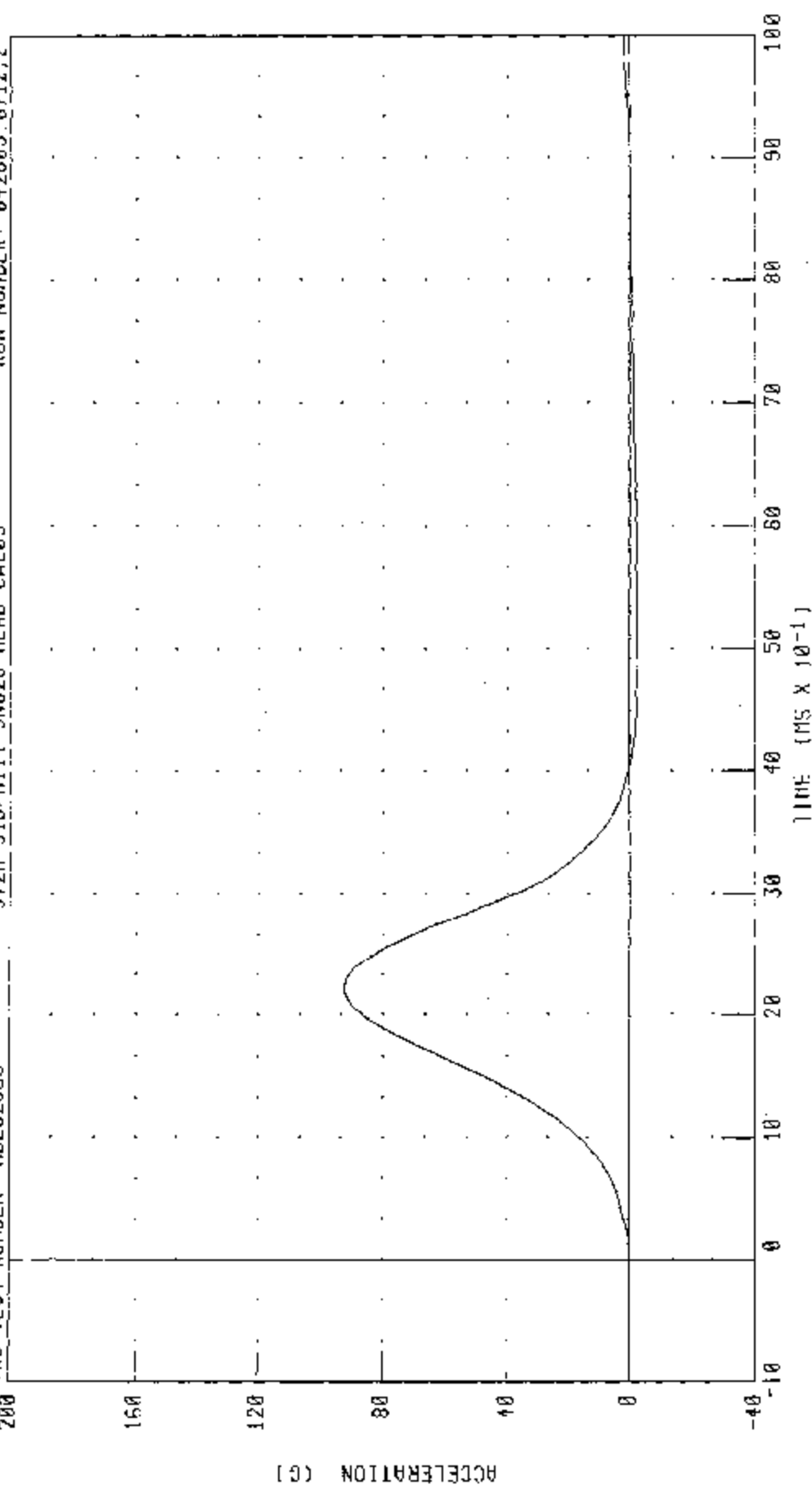
CHANNEL: HDXG FILTER: CH. CLASS 1000

PEAK DATA: 471 G @ 4.48 MS; -9.66 G @ 2.24 MS

572M S10/H111 DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: HDL02805 572M S10/H111 SN028 HEAD CAL05 RUN NUMBER: 042803 071272



CHANNEL: HDYC FILTER: CH CLASS 1000

PEAK DATA: 92.37 G @ 2.24 MS; -2.74 G @ 4.88 MS

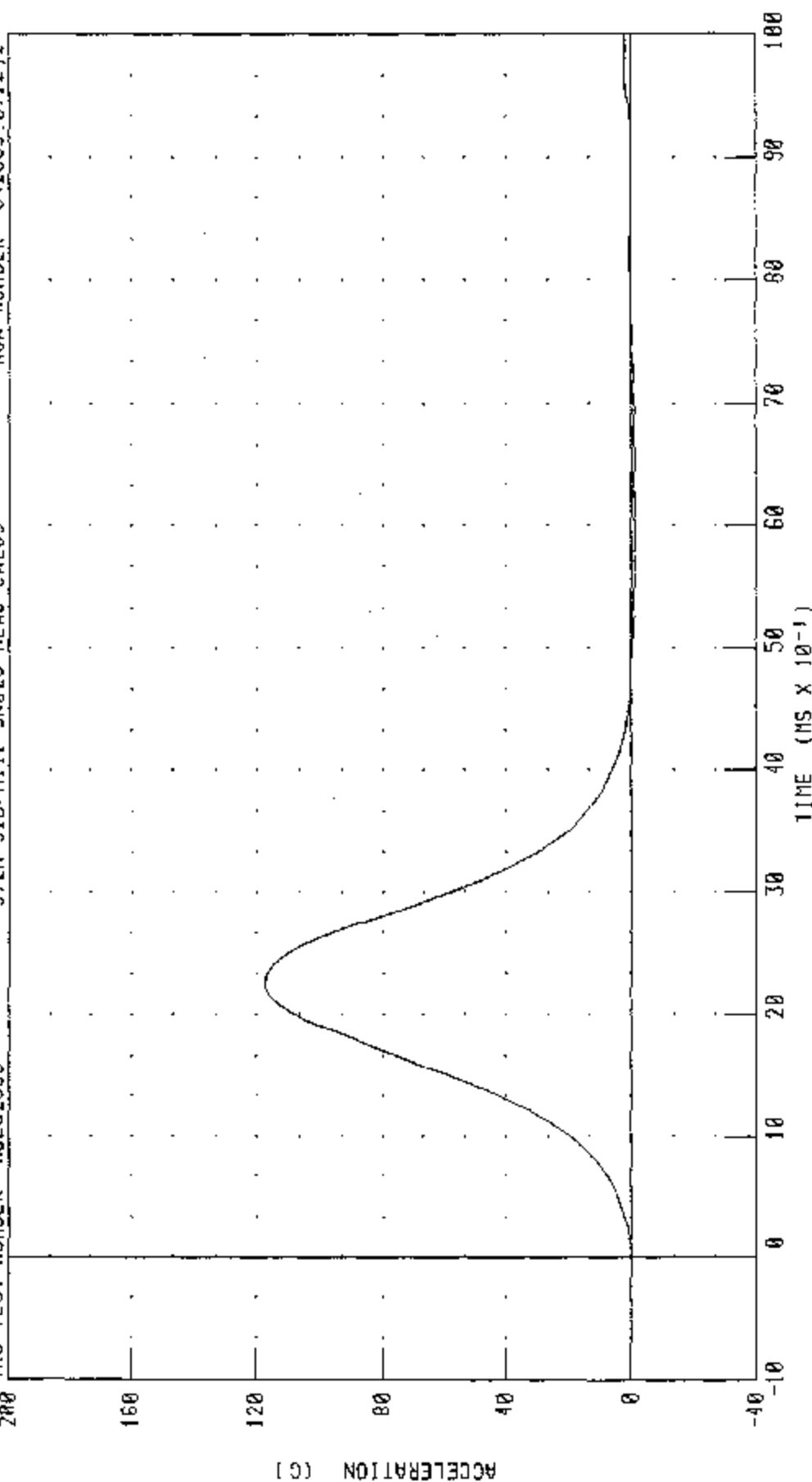
572M SID/HILL DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: H0102805

572M SID/HILL SN028 HEAD CAL05

RUN NUMBER: 042803 0712.2



CHANNEL: HEDZG FILTER: CH. CLASS 1000

PEAK DATA: 117.48 G @ 2.24 MS; -1.52 G @ 5.92 MS

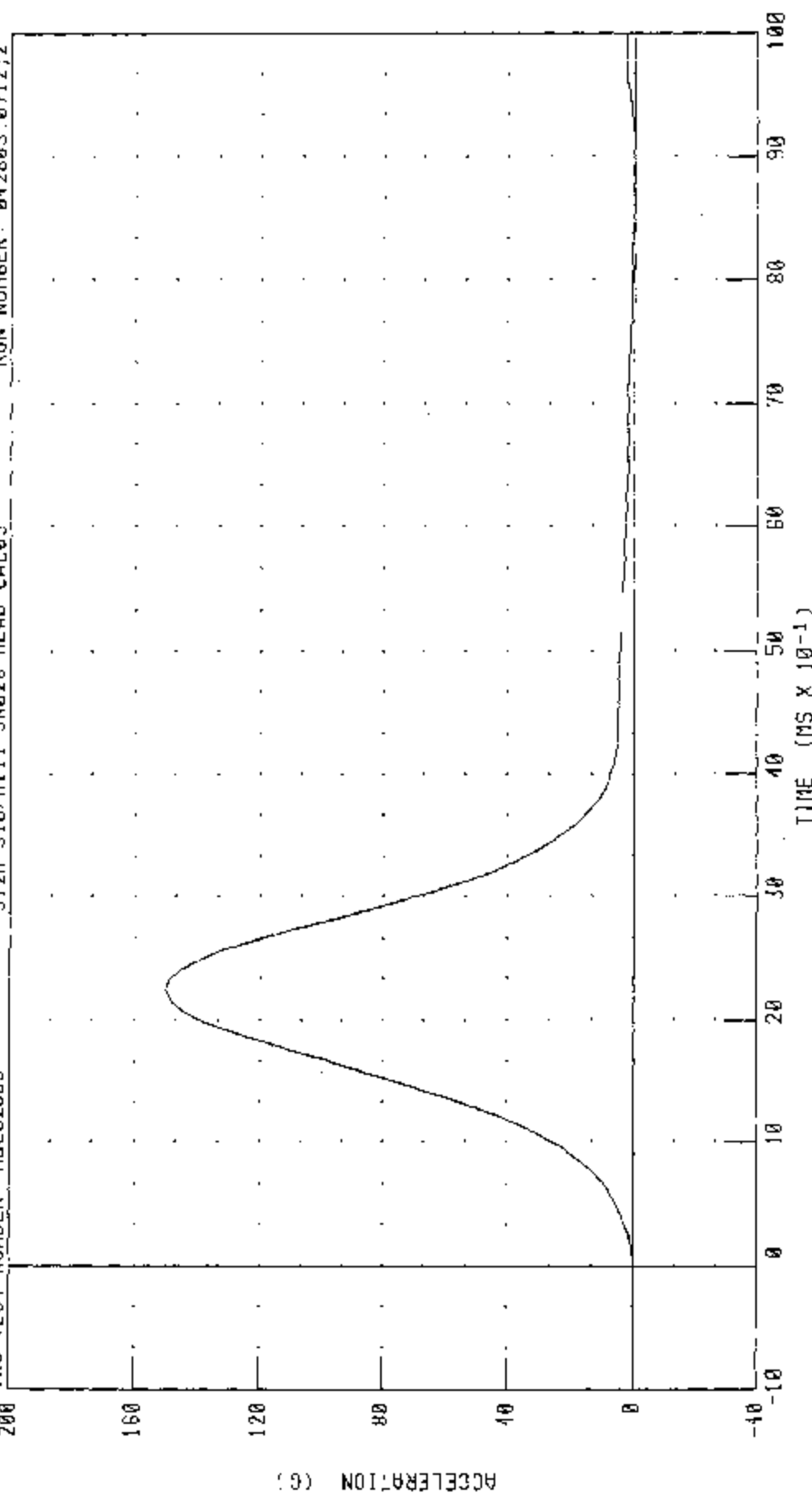
572M SID/H111 DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: HDL02805

572M SID/H111 SN028 HEAD CAL05

RUN NUMBER: 042803.0712,2



CHANNEL: HEADG FILTER: CH CLASS 1000

PEAK DATA: 149.76 G @ 24 MS; 0.02 G @ 0.64 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL NECK TEST

HYBRIDIII SID DUMMY

17-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NFL02805

H3/SID SN028 NECK LEFT CAL05

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.11 deg. C
RELATIVE HUMIDITY		10 - 70 %	41.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.44 M/S
	20 MS	4.12 - 5.10 M/S	4.88 M/S
	30 MS	5.73 - 7.01 M/S	6.88 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.12 - 7.18 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	71.05 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	61.20 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73 - 88 NM	78.66 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	54.24 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	8.32 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 041703.1527;1

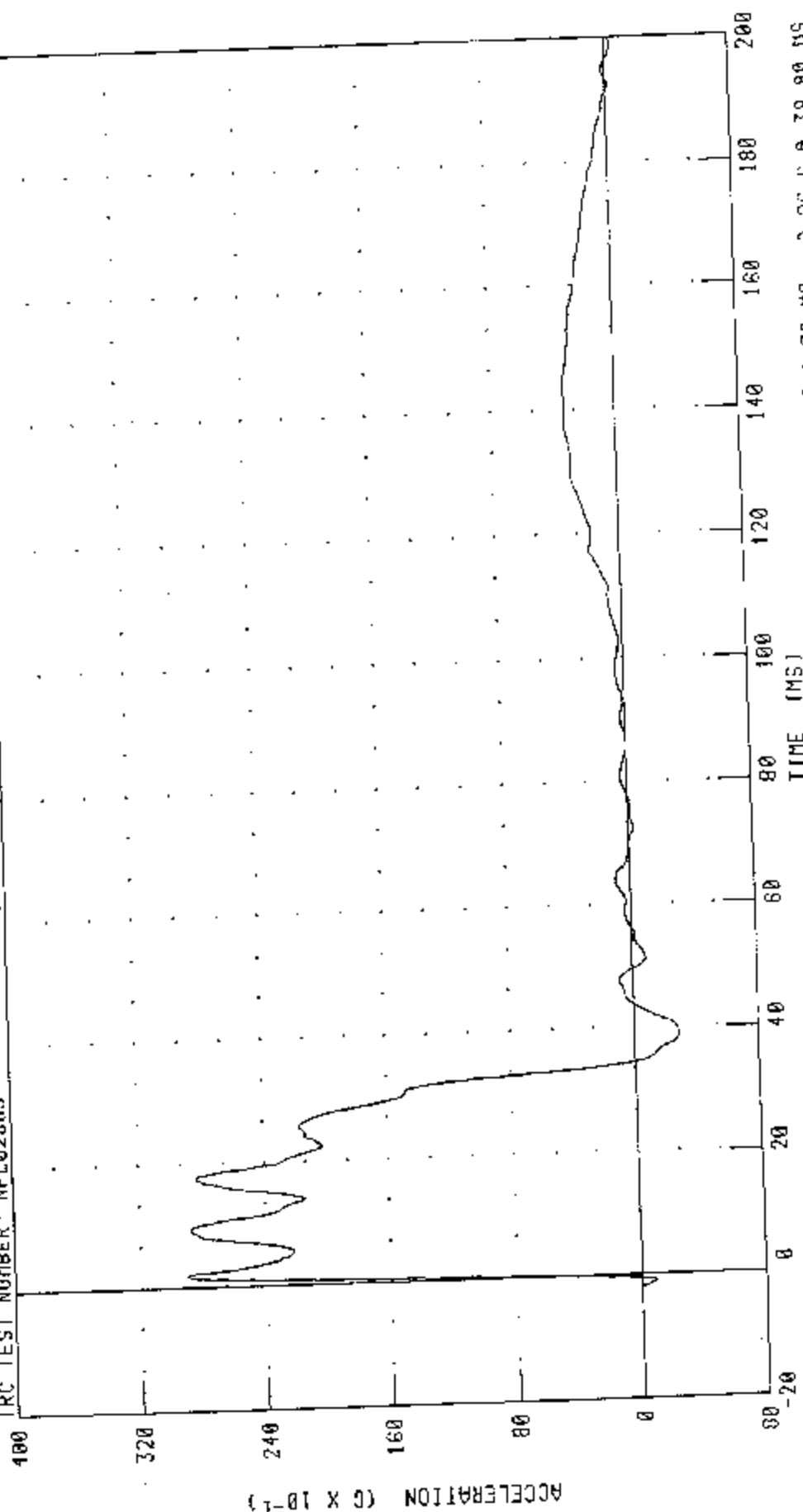
H3/SID DUMMY CALIBRATION --- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

RUN NUMBER: 041703.1530.1

H3/SID SN028 NECK LEFT CAL05

TRC TEST NUMBER: NFL02805



CHANNEL: PENXC FILTER: CH. CLASS 180

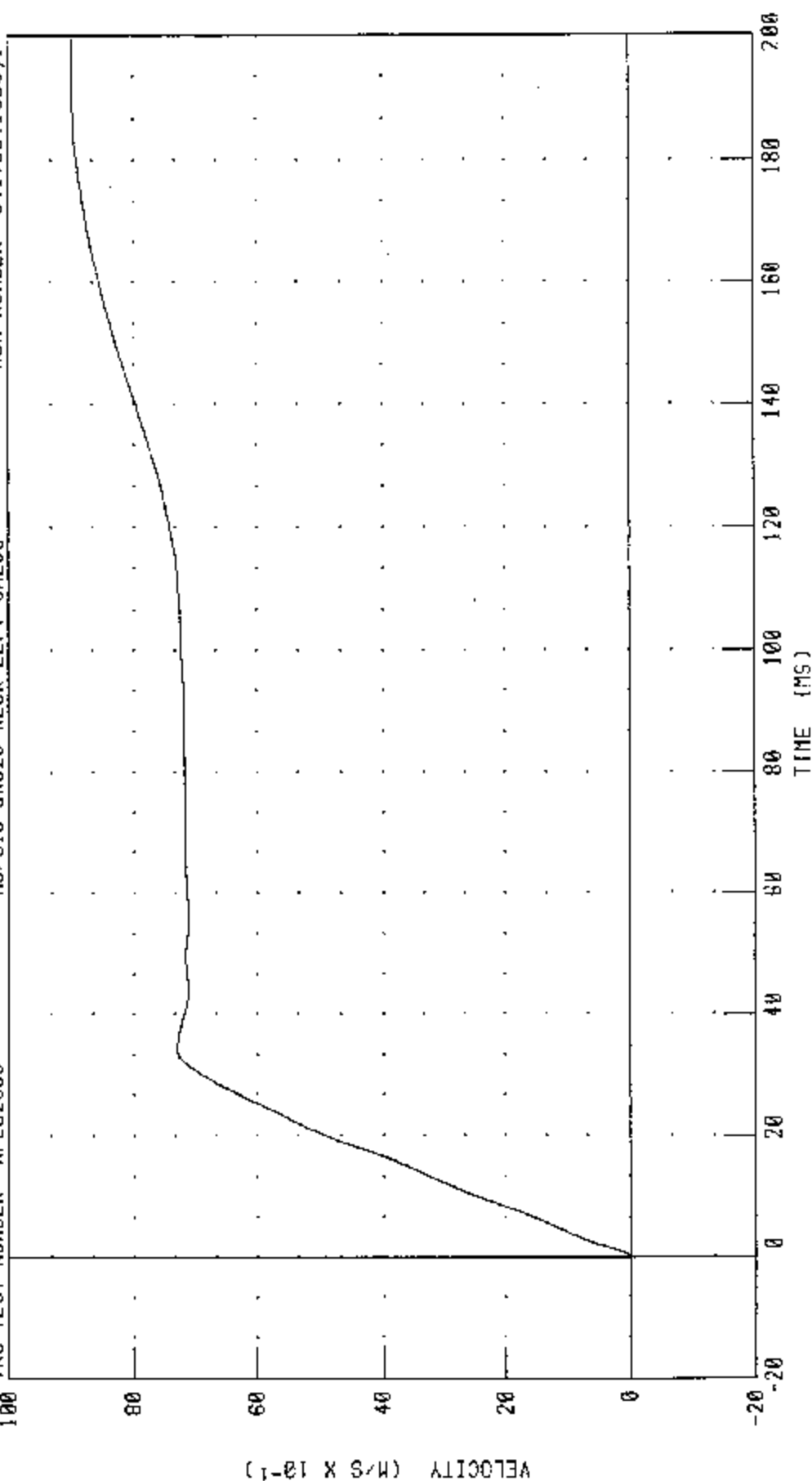
H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

TRC TEST NUMBER NFL02805

H3/SID SN028 NECK LEFT CAL05

RUN NUMBER 041703.1530;1



CHANNEL: PENXYI FILTER CH CLASS 180

PEAK DATA: 8.99 M/S @ 196.08 MS, -0.01 M/S @ -0.56 MS

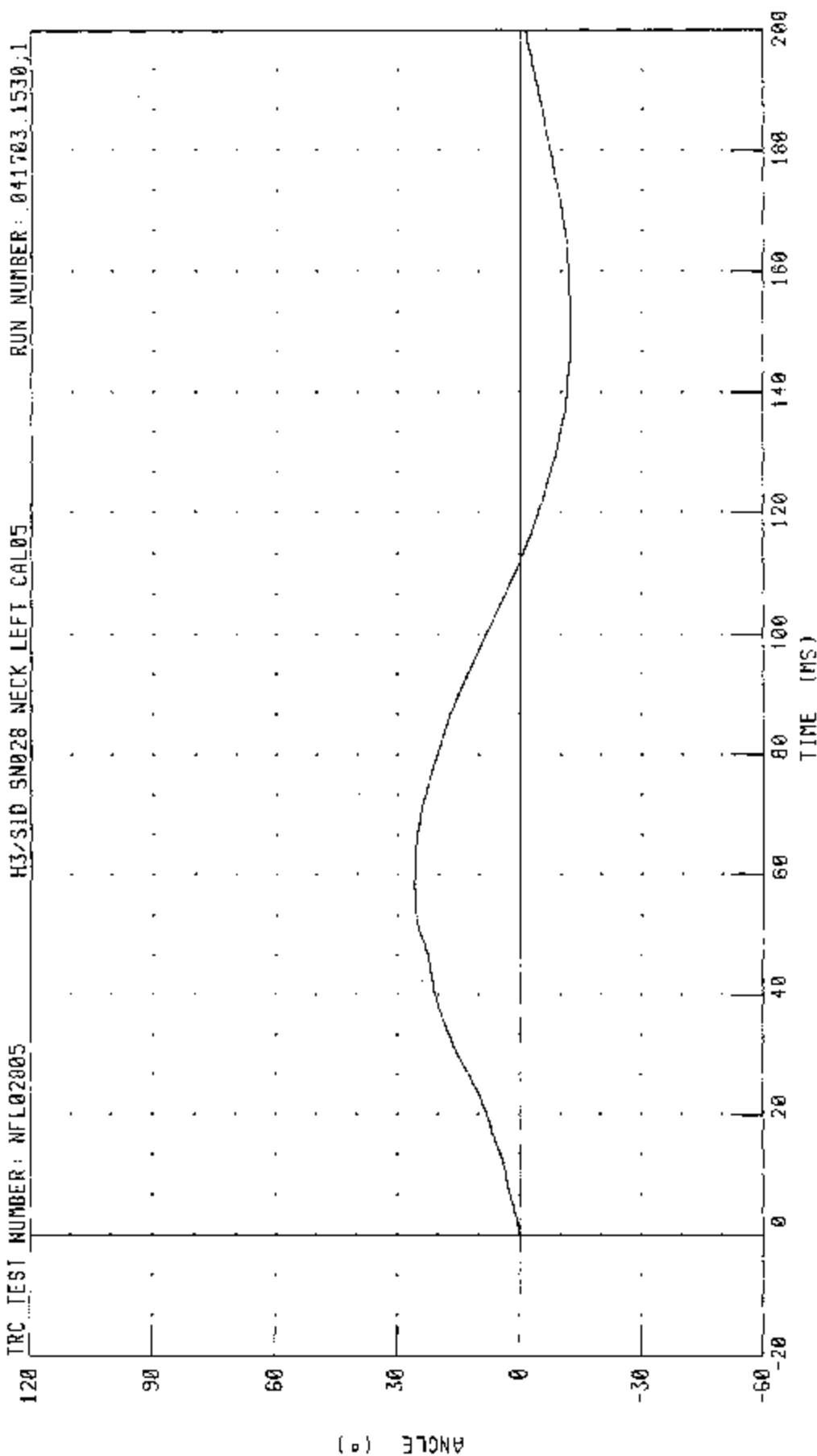
H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: NFL02805

H3/S10 SN028 NECK LEFT CAL05

RUN NUMBER: 041703.1530.1



PEAK DATA: 25 85 ° @ 61 20 MS; -12 35 ° @ 150 80 MS

CHANNEL: BFI0 FILTER: CH. CLASS 60

ANGLE (°)

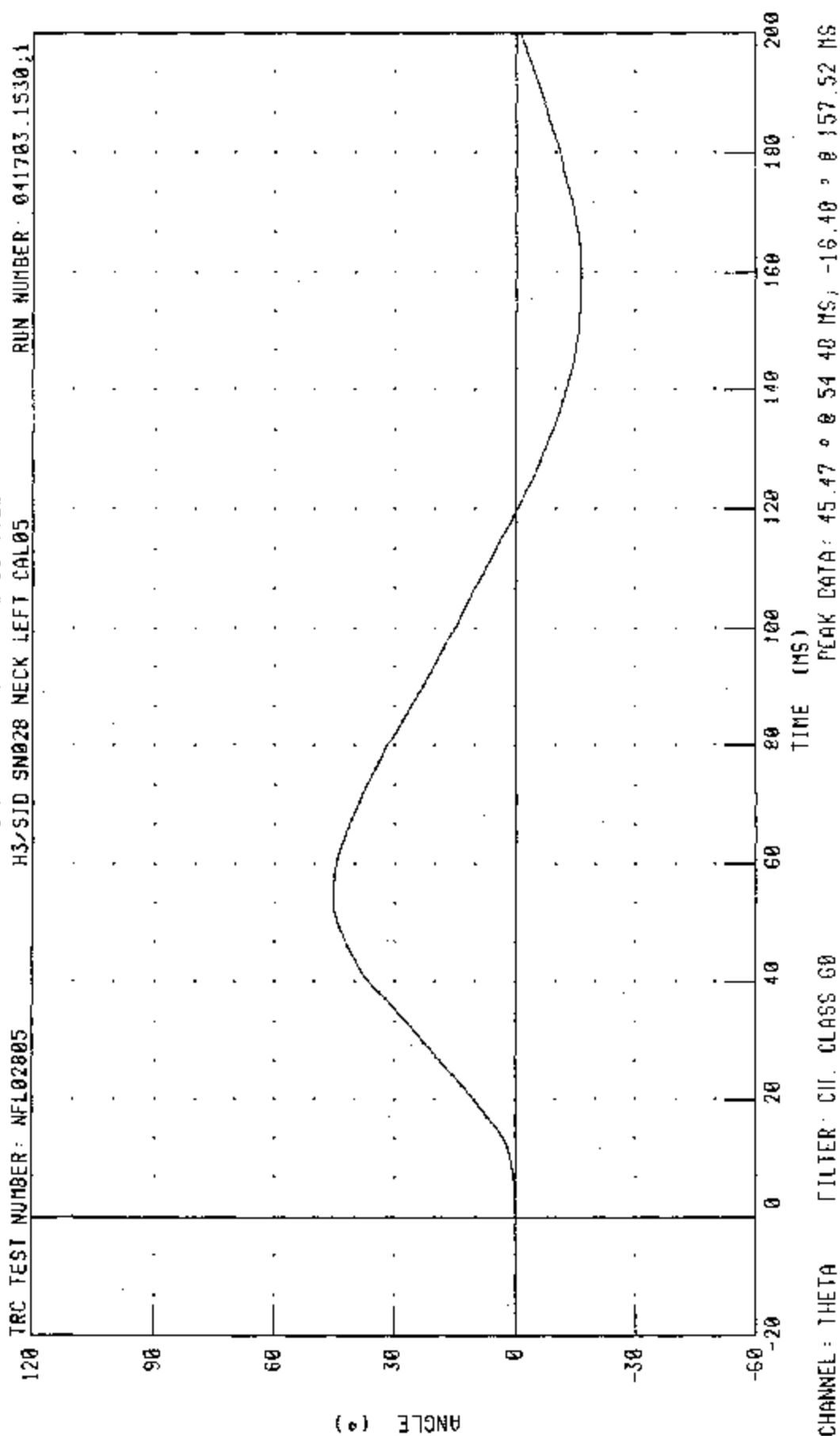
H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFO02805

H3/SID SN028 NECK LEFT CAL05

RUN NUMBER: 041703.1530.1



CHANNEL: THETA FILTER: CII. CLASS 60

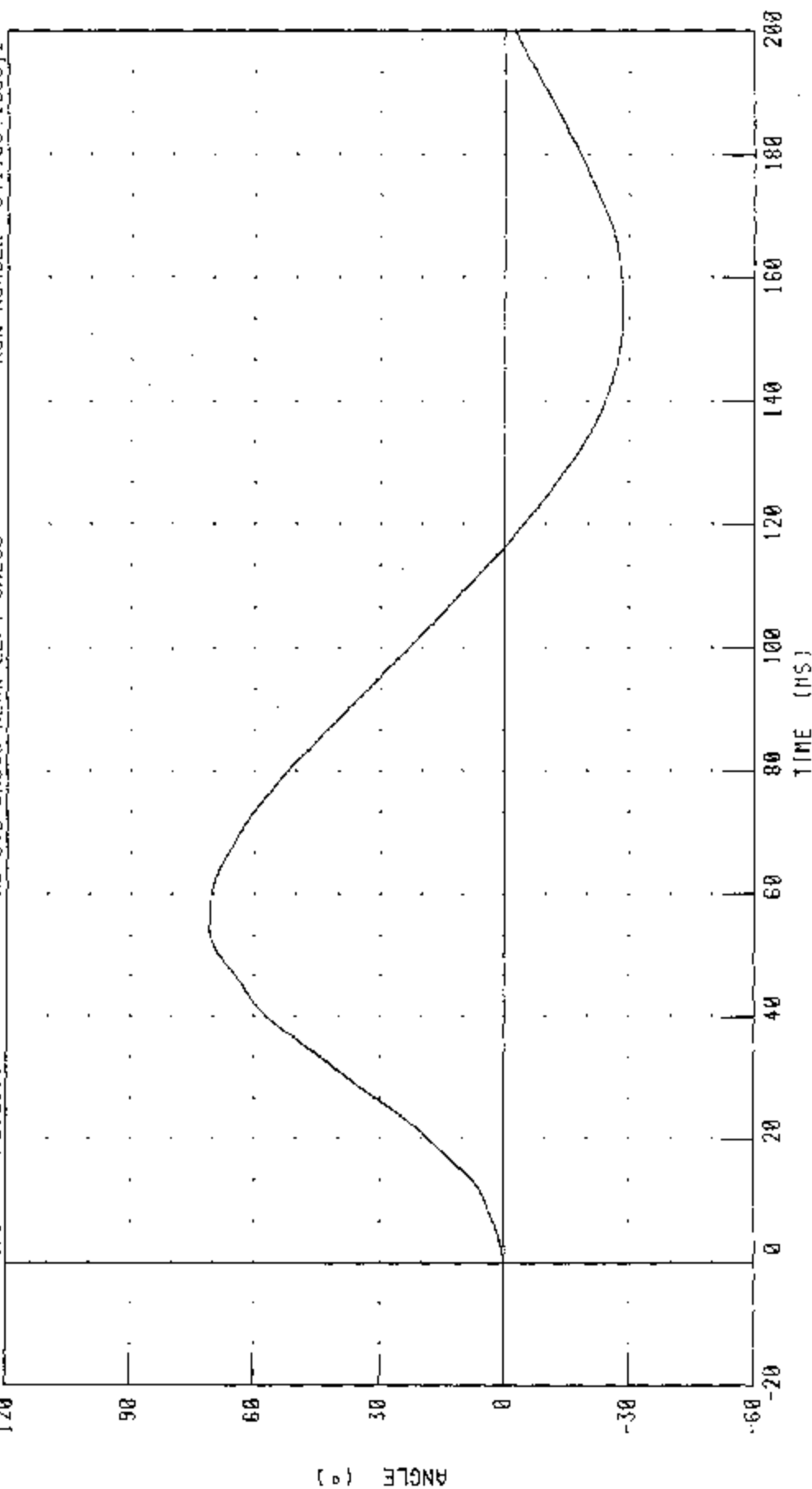
H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

IRC TEST NUMBER: NFL02805

H3/S10 SN028 NECK LEFT CAL05

RUN NUMBER: 041703.1530.1



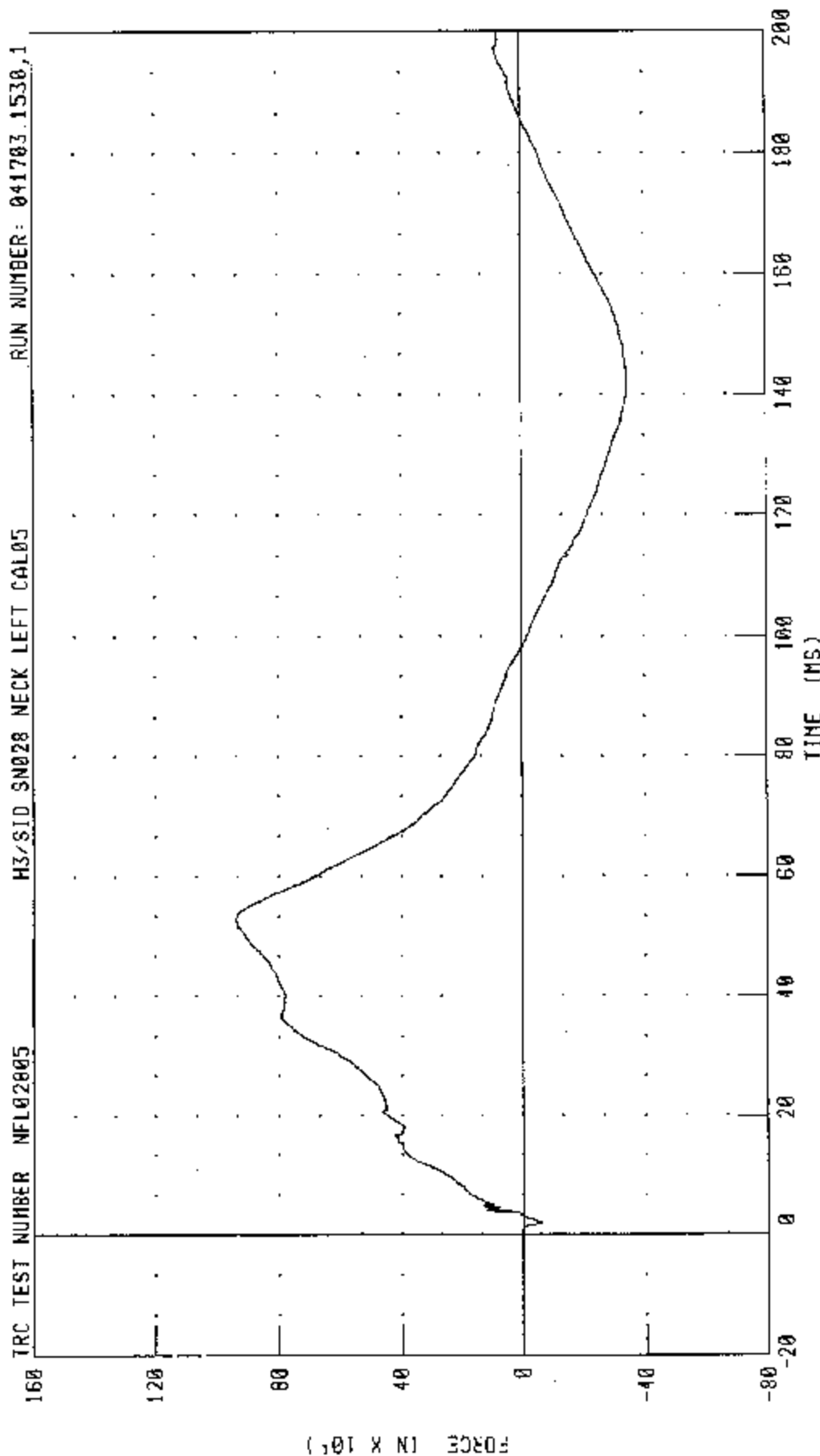
PEAK DATA: 71.05 ° @ 55.20 MS; -28.55 ° @ 154.72 MS

CHANNEL: TOTAL FILTER: CH CLASS 60

H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

TRC TEST NUMBER NFL02805 H3/SID SN028 NECK LEFT CAL05 RUN NUMBER: 041703.1530.1



CHANNEL: NEKYF FILTER: CH CLASS 1800

PEAK DATA: 937.92 N @ 52.88 MS; -344.45 N @ 141.36 MS

FORCE (N X 10^4)

TIME (MS)

H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

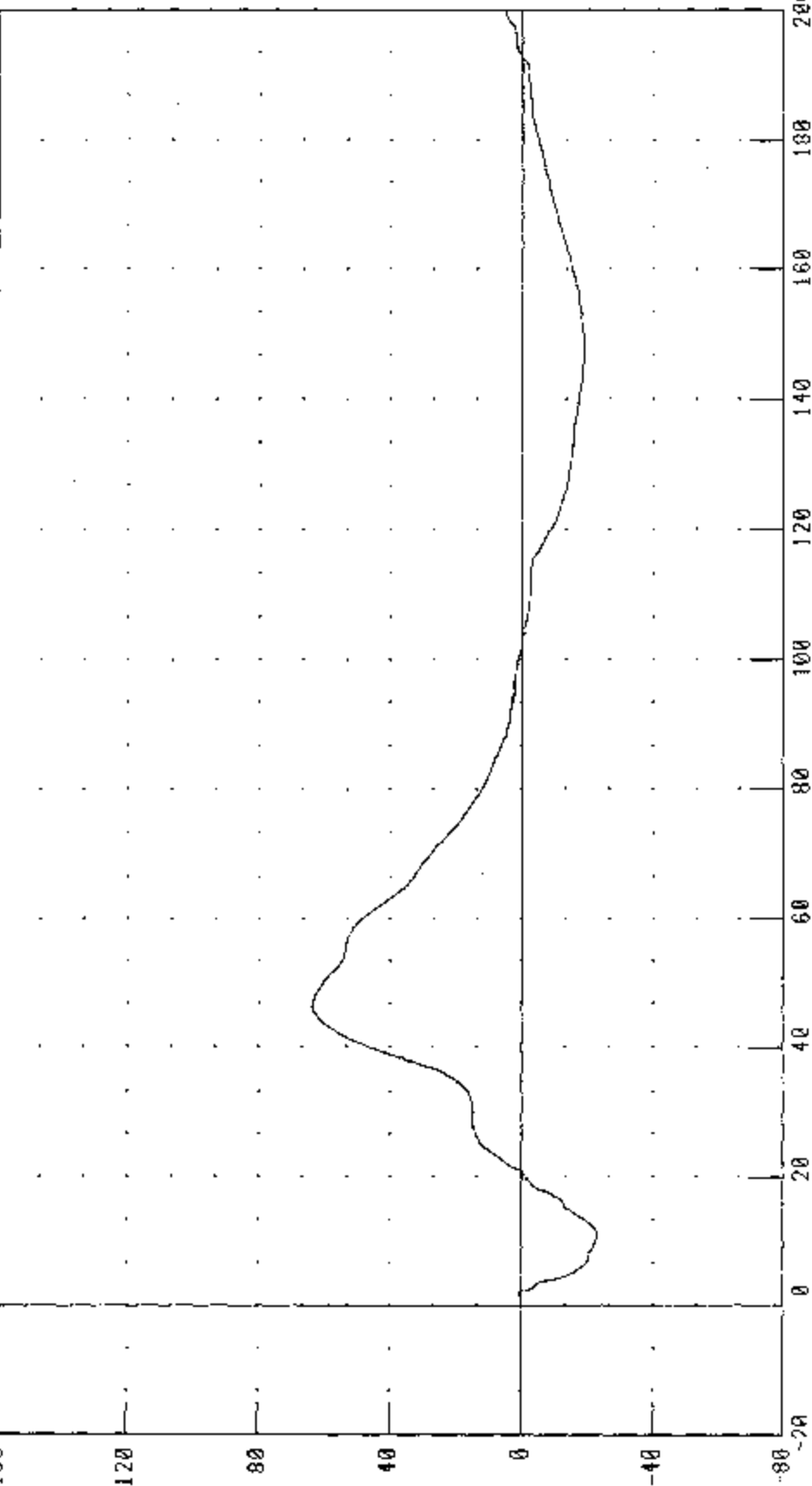
NECK MOMENT X AXIS

TRC TEST NUMBER: NFL02805

H3/SID SN028 NECK LEFT CAL05

RUN NUMBER: 041703.1530.1

160



TORQUE (N-M)

TIME (MS)

PEAK DATA: 63.59 N-M @ 45.64 MS, -22.90 N-M @ 10.60 MS

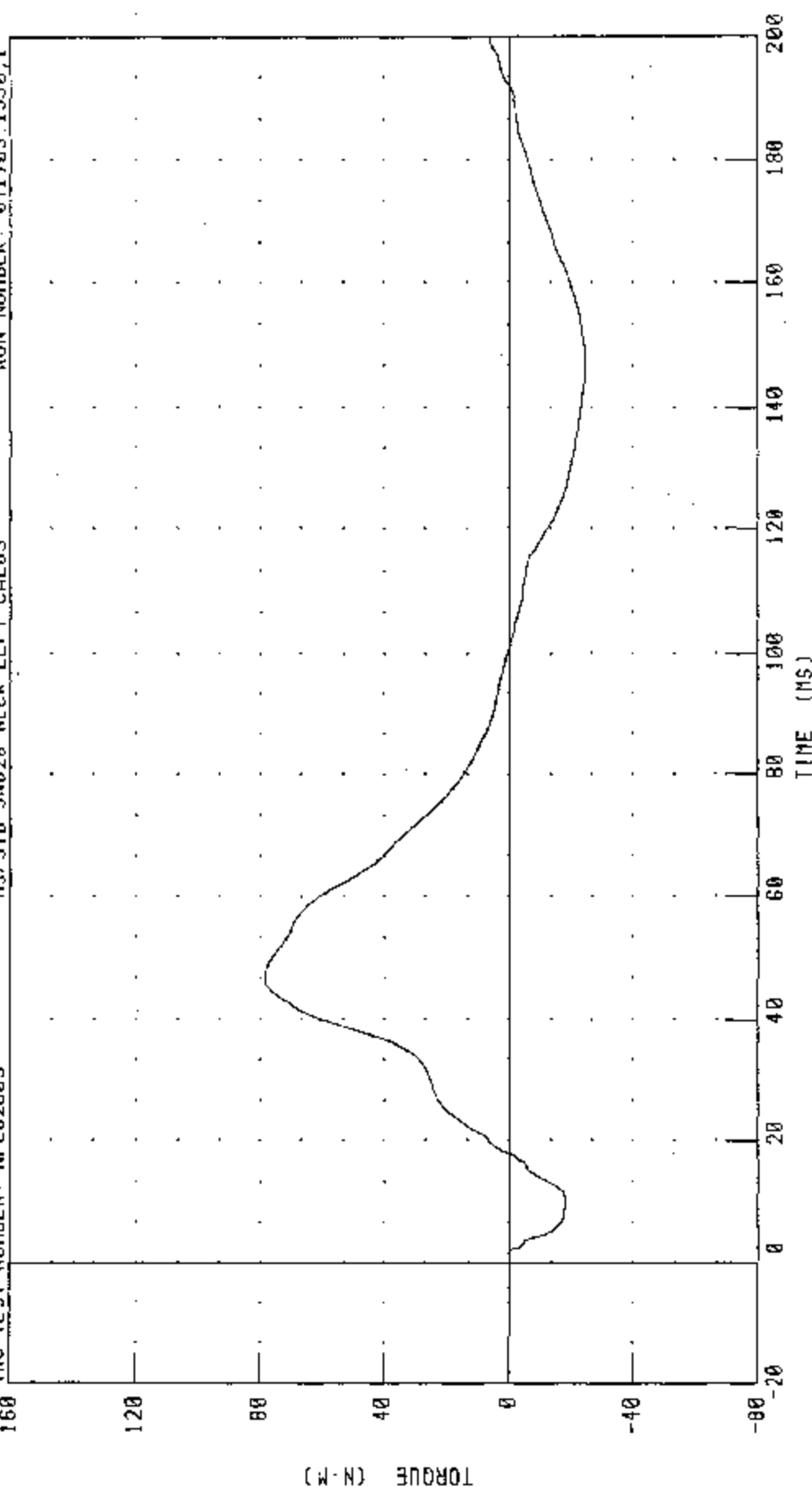
CHANNEL: NCKXH FILTER: CII, CLASS 600

H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL02805

H3/SID SN028 NECK LEFT CAL05

RUN NUMBER: 041703.1530.1



CHANNEL: NEKOM FILTER: CH. CLASS 600

PEAK DATA: 78.66 N-M @ 48.88 MS; -24.65 N-M @ 145.92 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

28-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL02805A

572F SID SN028 L.THORAX CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	32.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	42.0 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	41.4 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	17.5 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 042803.1314;1

PART 572-F S I D THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENOVULUM DECELERATION

TRC TEST NUMBER: STL02805A

572F SID SN028 L THORAX CAL05

RUN NUMBER: 042803.1314.1

60

45

30

15

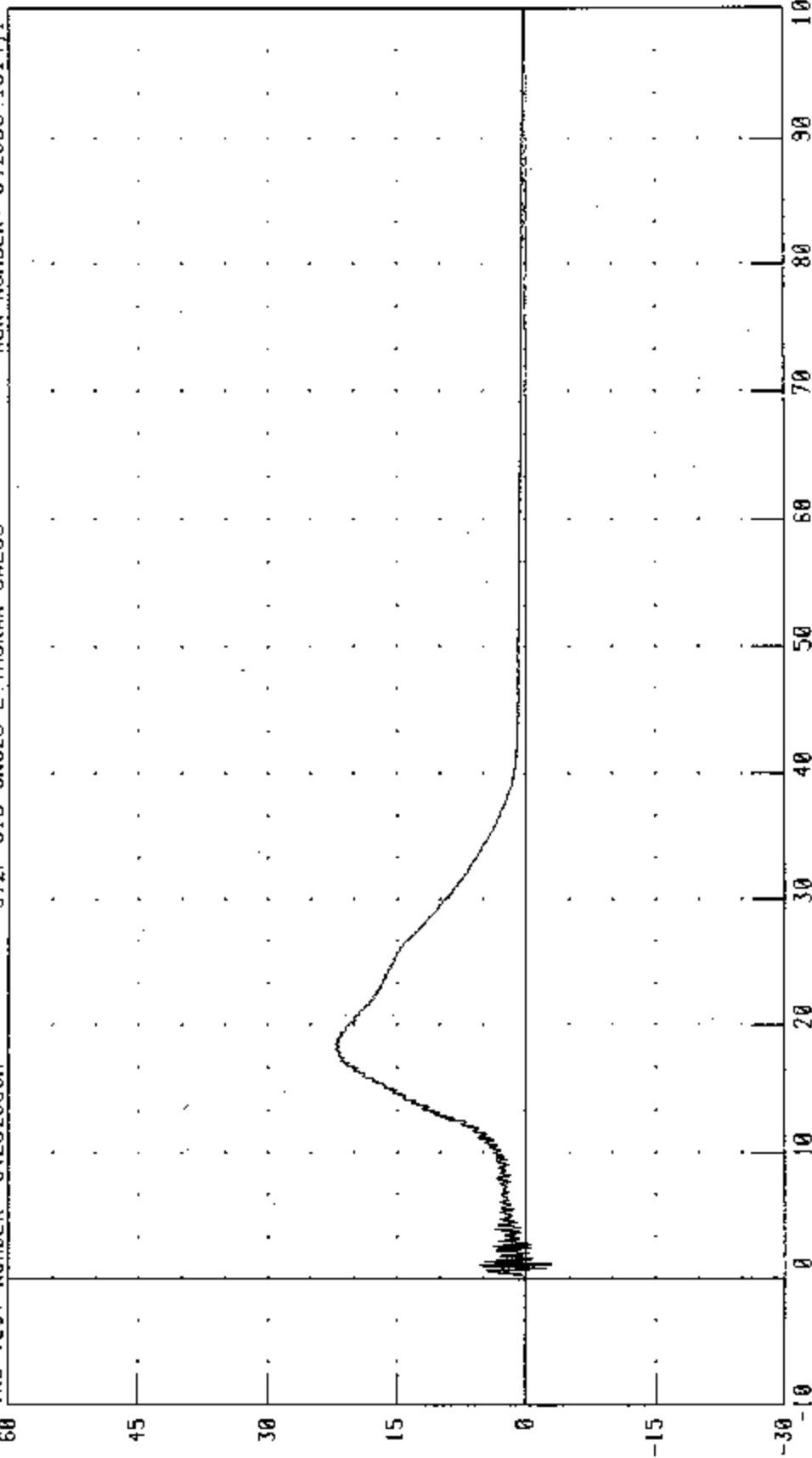
0

-15

-30

ACCELERATION (G)

C-20



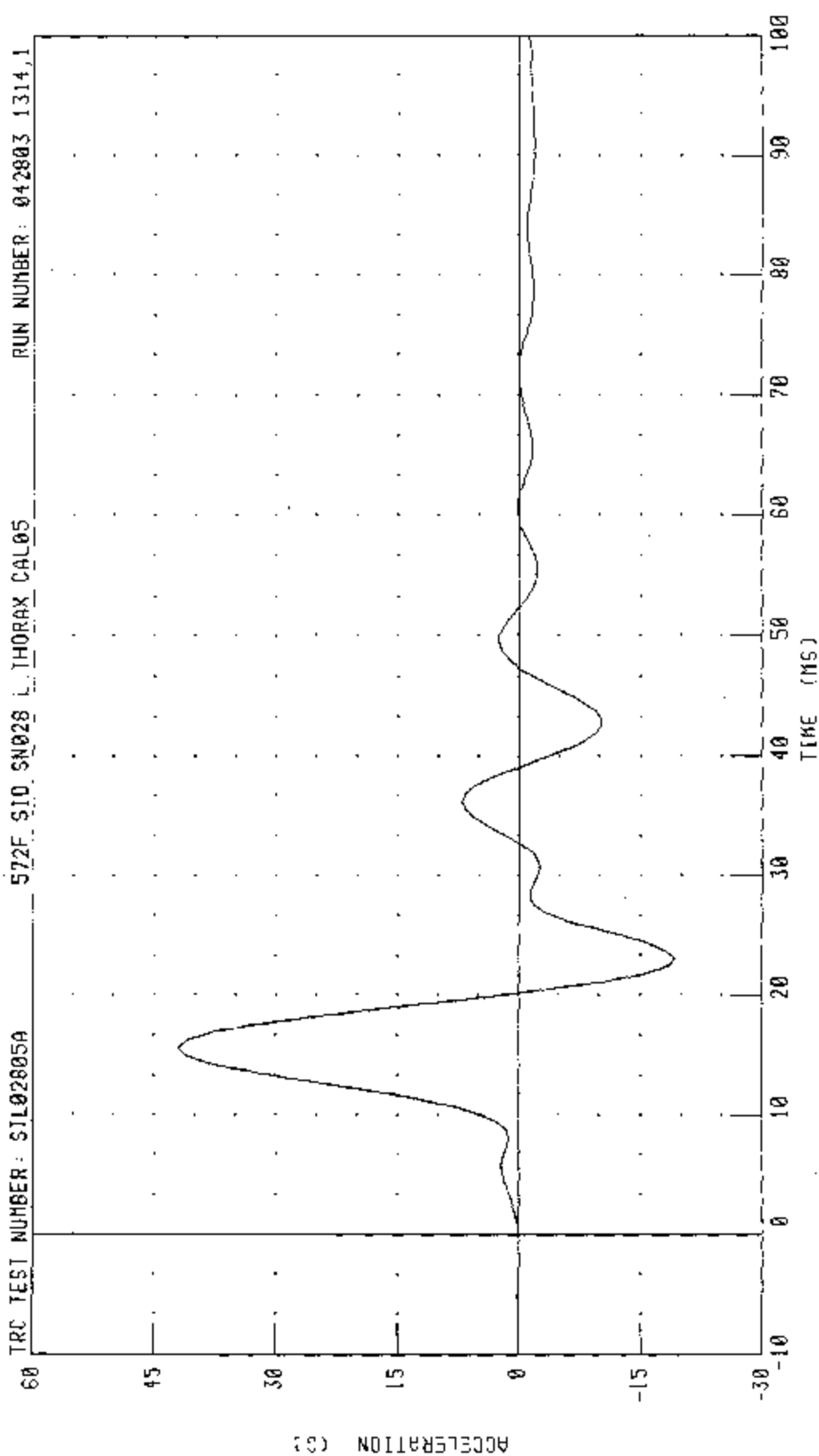
TIME (MS)

CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 22.09 G @ 18.16 MS, -2.96 G @ 1.12 MS

030430

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT UPPER RIB ACCELERATION Y AXIS



PEAK DATA: 42.04 G @ 15.63 MS; -19.19 G @ 23.13 MS

CHANNEL: LURYG FILTER: FIR 100

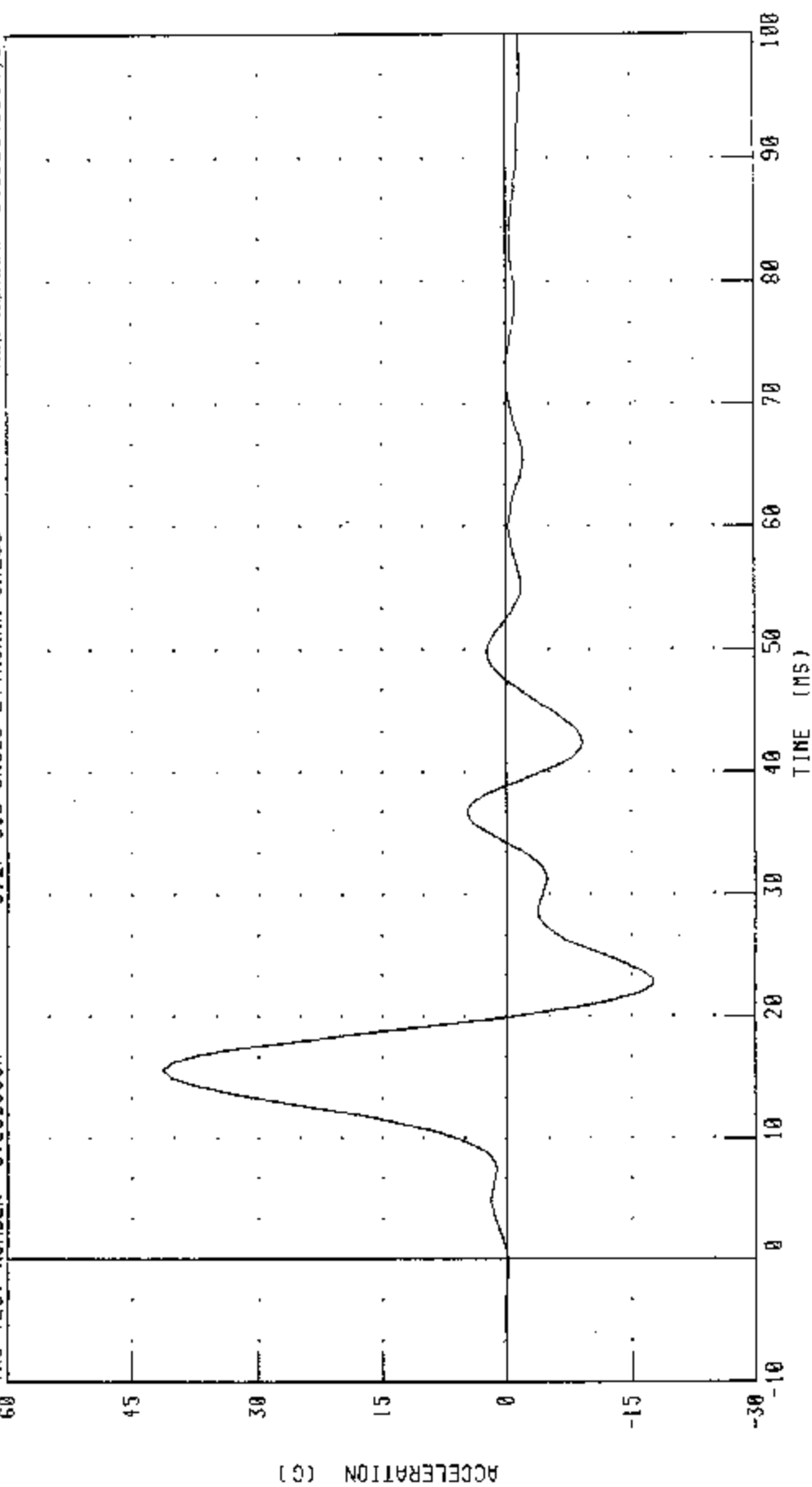
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: SIL02805A

572F SID SN028 L THORAX CAL05

RUN NUMBER: 012803.1314.1



CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 41.36 G @ 15.63 MS; 17.47 G @ 22.50 MS

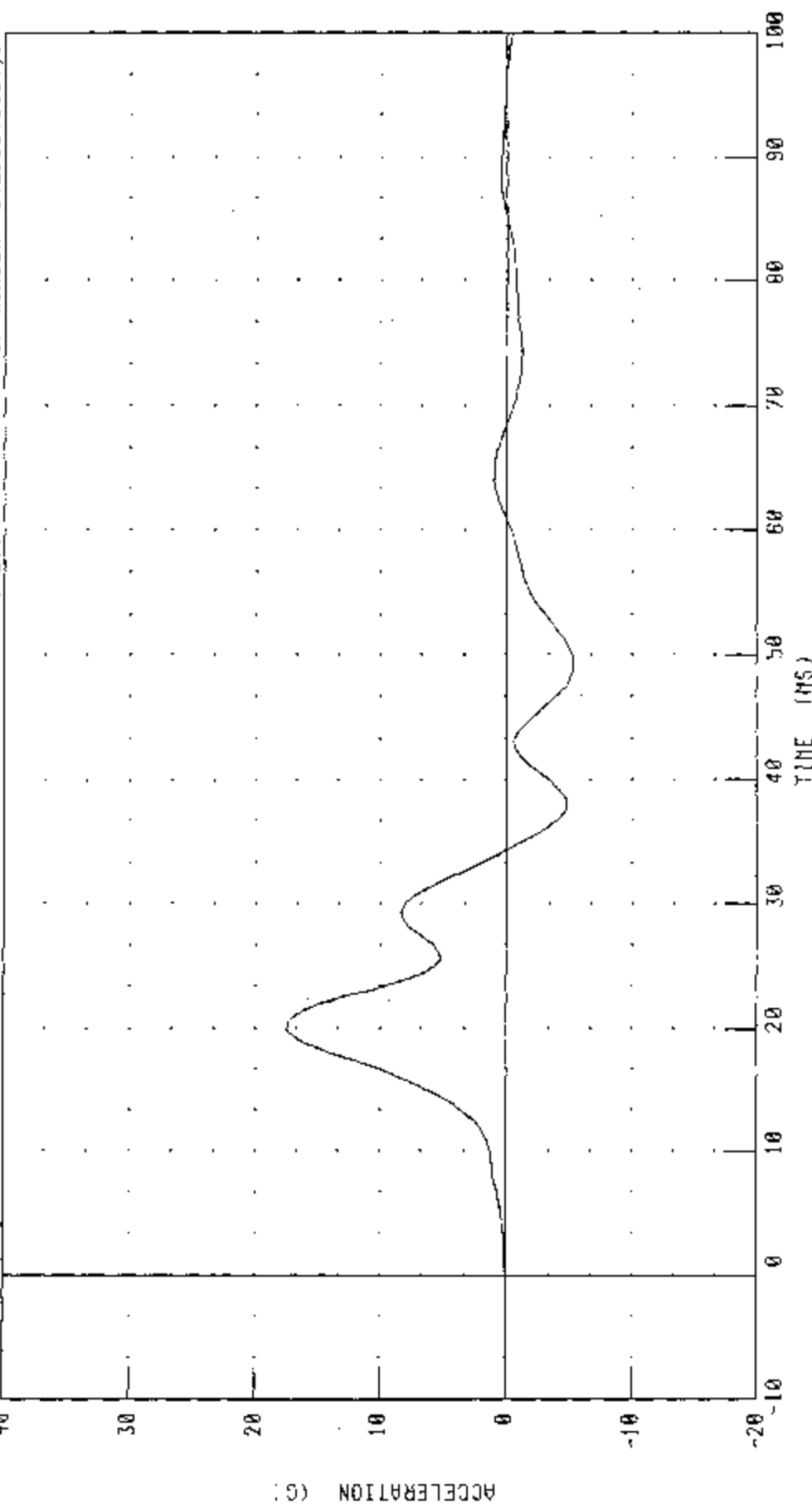
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL02805A

572F SID SN028 L THORAX CAL05

RUN NUMBER: 042803.1314.1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 17.46 G @ 20.00 MS, -5.29 G @ 49.37 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN028 DAMPER TEST CAL01

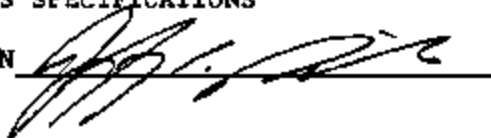
TEST NUMBERS: DP02801A,DP02801B,DP02801C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	750 N
2.69 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1791 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.9 MM
VELOCITY	FORCE	3784 - 4495 N	4259 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.8 MM

DAMPER SETTING = 5.6

TEST MEETS SPECIFICATIONS

TECHNICIAN

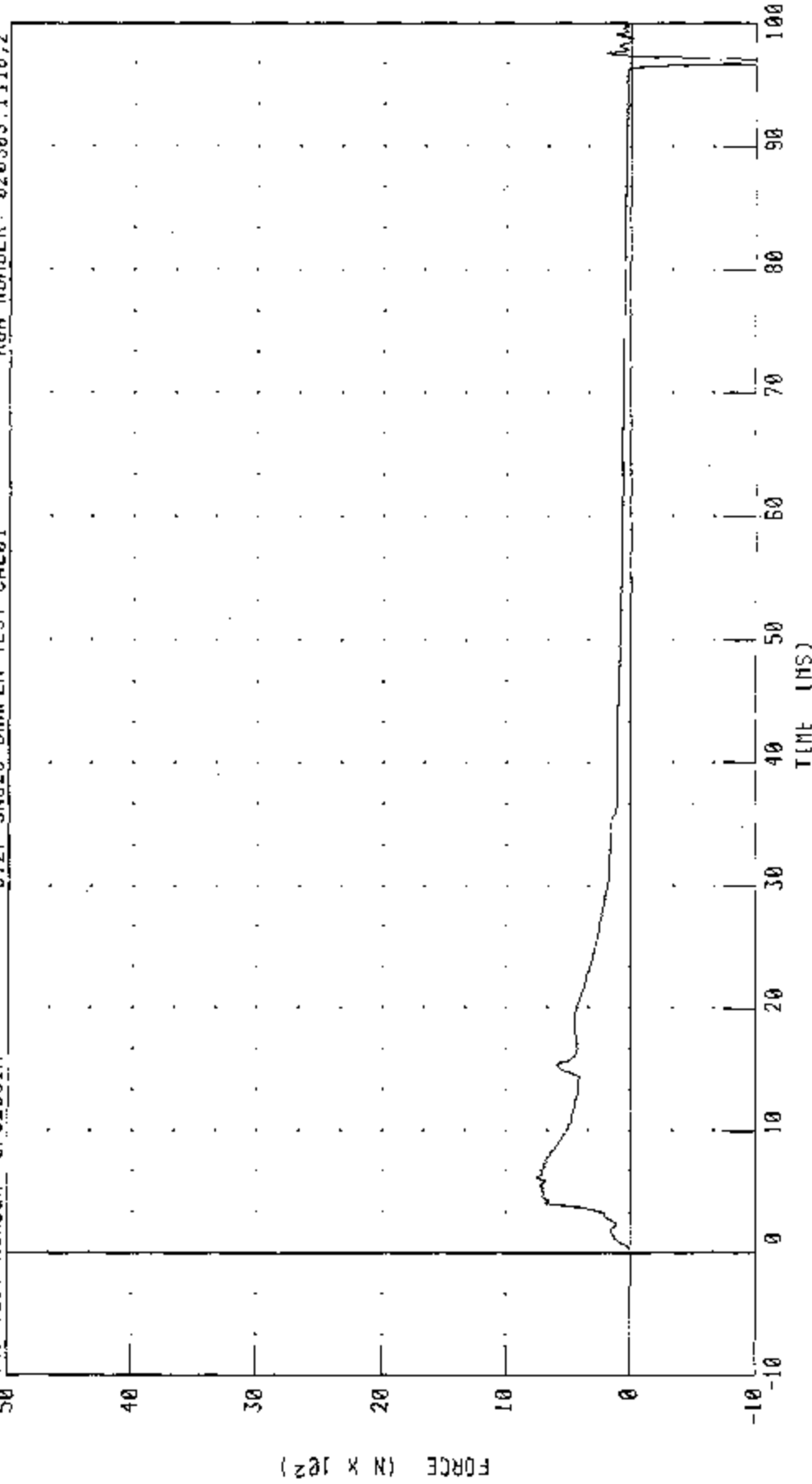


RUN NUMBER: 020303.1116;2

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP02801A 572F SN028 DAMPER TEST CAL01 RUN NUMBER: 020303.111672



CHANNEL: DAMPT FILTER: CH. CLASS 1000 PEAK DATA: 749.74 N @ 6.16 MS; -1712.81 N @ 96.80 MS

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

RUN NUMBER: 020303.1116.2

572F SN028 DAMPER TEST CAL01

IRC TEST NUMBER: 0P02B01A

50

40

30

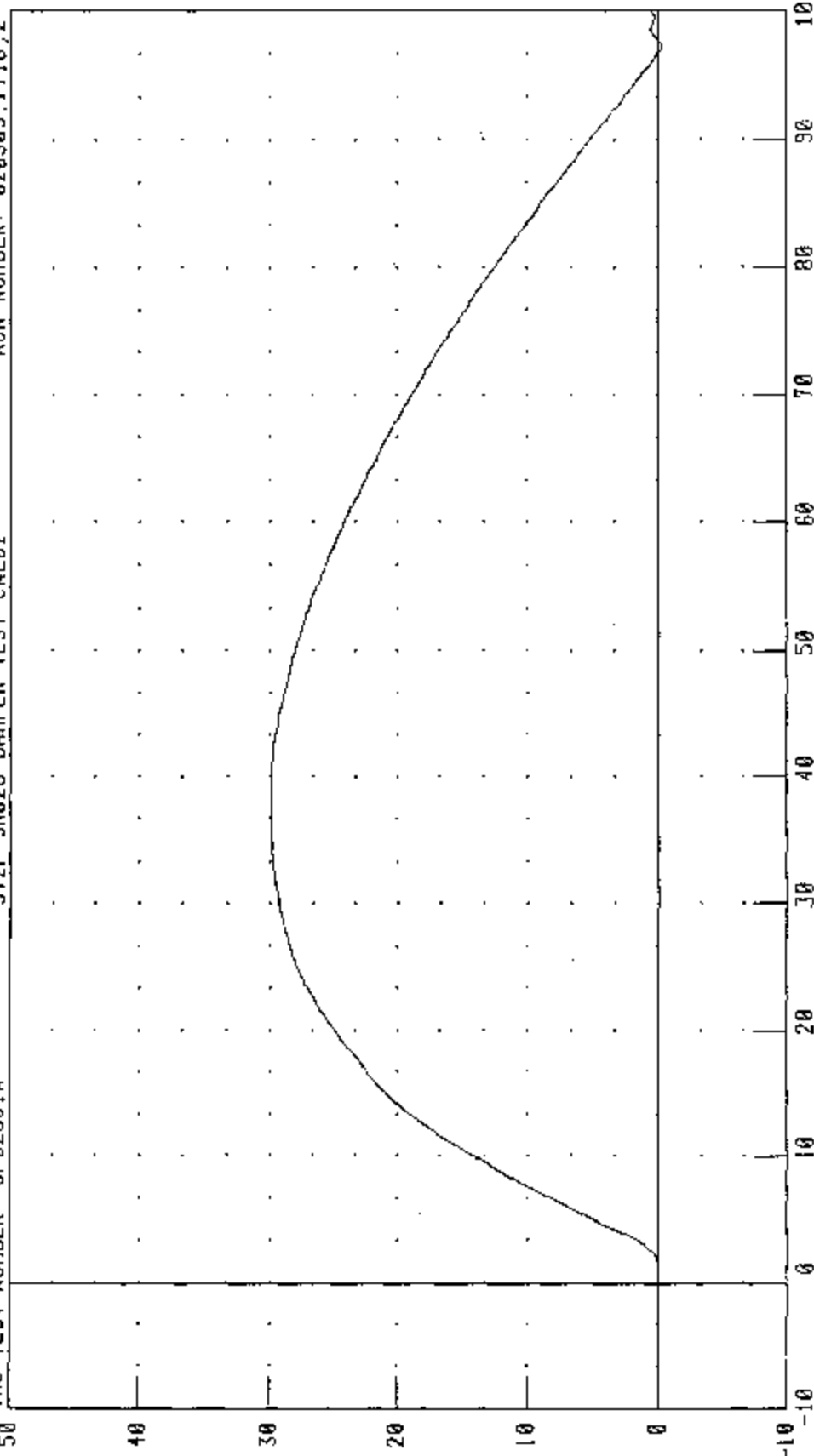
20

10

0

-10

DISPLACEMENT (MM)



TIME (MS)

CHANNEL: CSIYD FILTER: CH. CLASS 1000

PEAK DATA: 29.87 MM @ 35.20 MS; -0.31 MM @ 97.20 MS

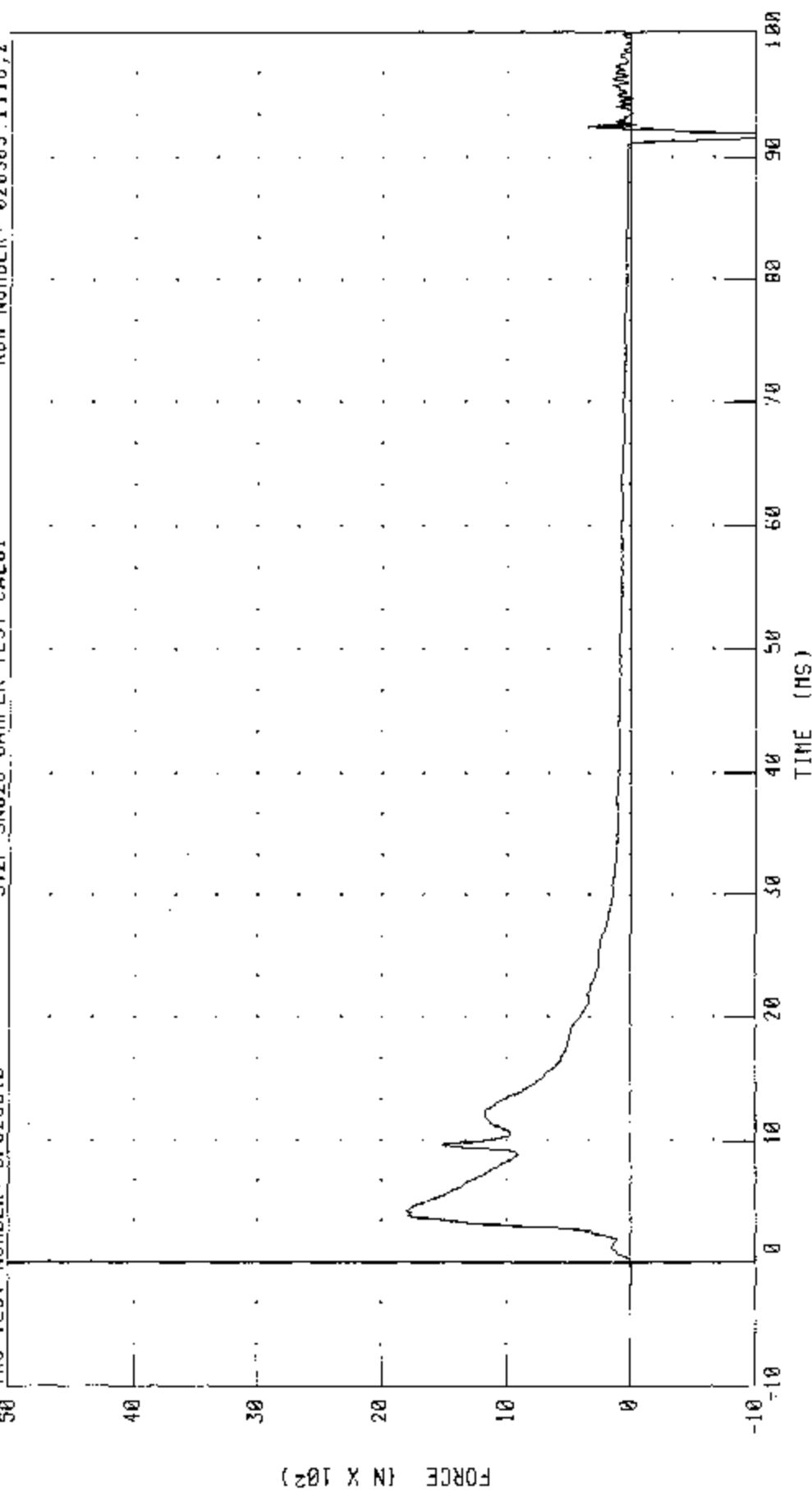
PART 572-F S.I.U. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP02801B

572F SN028 DAMPER TEST CAL01

RUN NUMBER: 020303.1116;2



TIME (MS)

CHANNEL: DAMPT FILTER: CH. CLASS 1000

PEAK DATA: 1791.40 N @ 4.16 MS; -2104.23 N @ 91.68 MS

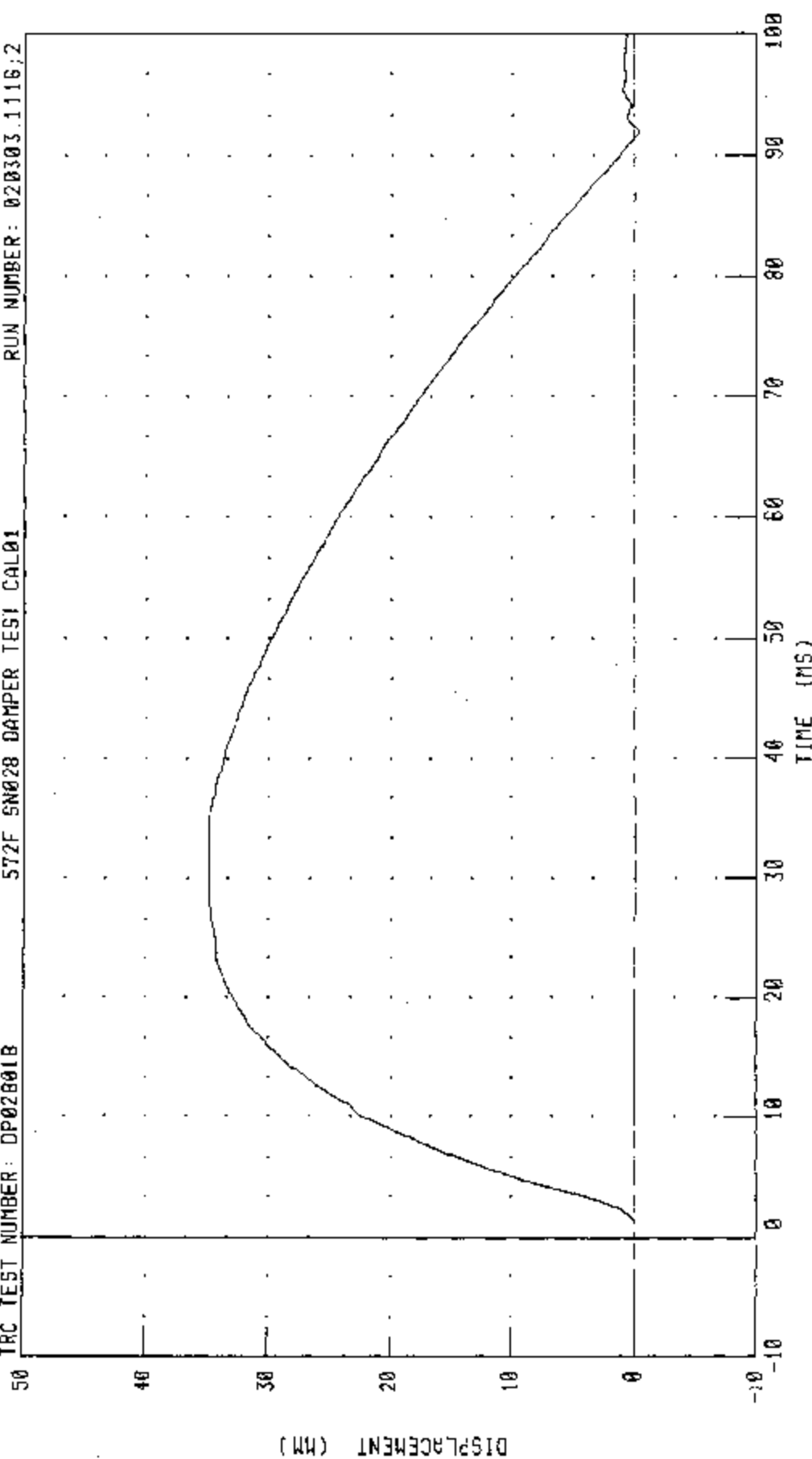
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP02801B

572F SN028 DAMPER TEST CAL01

RUN NUMBER: 020303.1116;2



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 34 90 MM @ 30 64 MS; -0.40 MM @ 92.00 MS

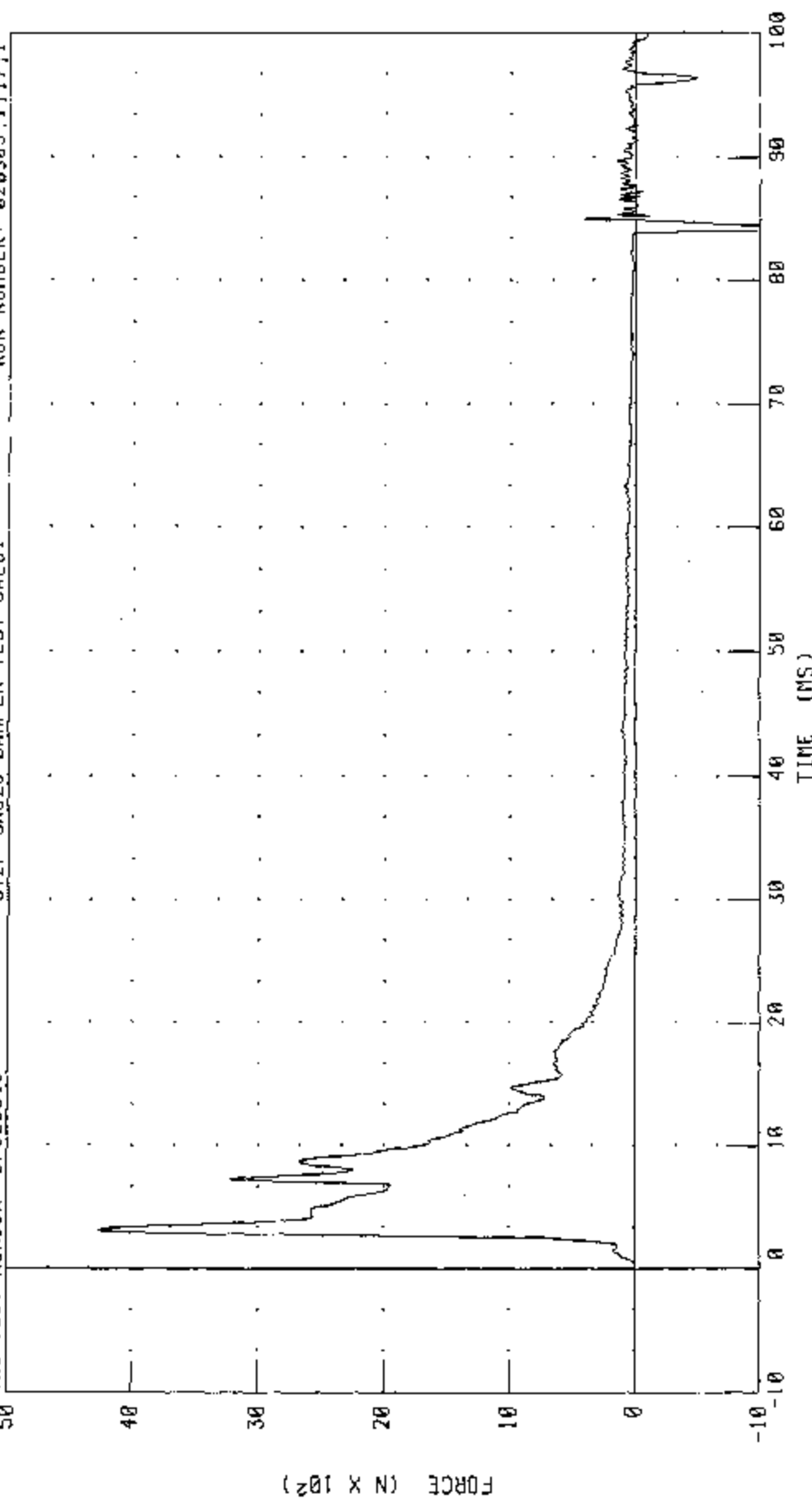
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP02B01C

572F SN028 DAMPER TEST CAL01

RUN NUMBER: 020303.1117.1



TIME (MS)

PEAK DATA: 4259.31 N @ 3.12 MS, -2213.42 N @ 84.24 MS

CHANNEL - DAMPF FILTER - CH. CLASS 1000

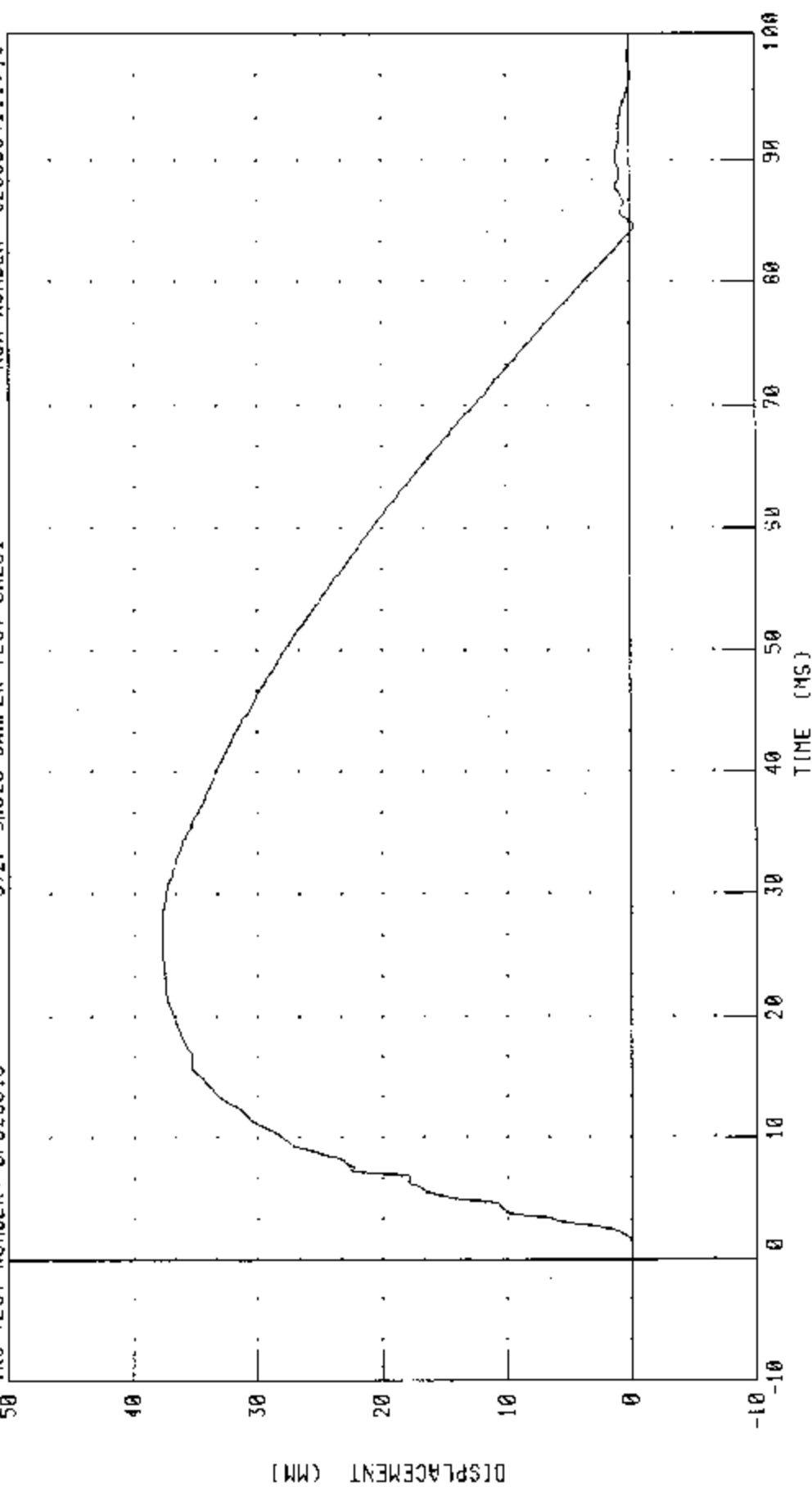
PART 572-F S I U. THURACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP02001C

572F SN028 DAMPER TEST CAL01

RUN NUMBER: 020303.1117.1



CHANNEL: CSTYD FILTER: CH CLASS 1000

PEAK DATA: 37.75 MM @ 26.56 MS, -0.36 MM @ 84.48 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 16-Apr-03

TRC, INC. TEST NO: 028C05LF1 572B SN 028 TORSO FLEX CAL 05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.9 °C
RELATIVE HUMIDITY	10 – 70 %	39 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	115.7 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	177.9 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	213.5 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	6.0 °

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

572B Abdomen Compression Test

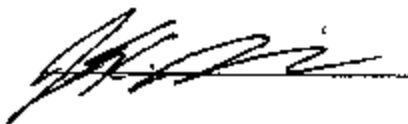
HIII SID Serial No. 028 Calibration No. 05 - 1

Test Date 04/16/2003

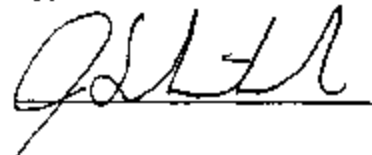
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.0 - 8.1 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



04.18.2003 09:12:04 98

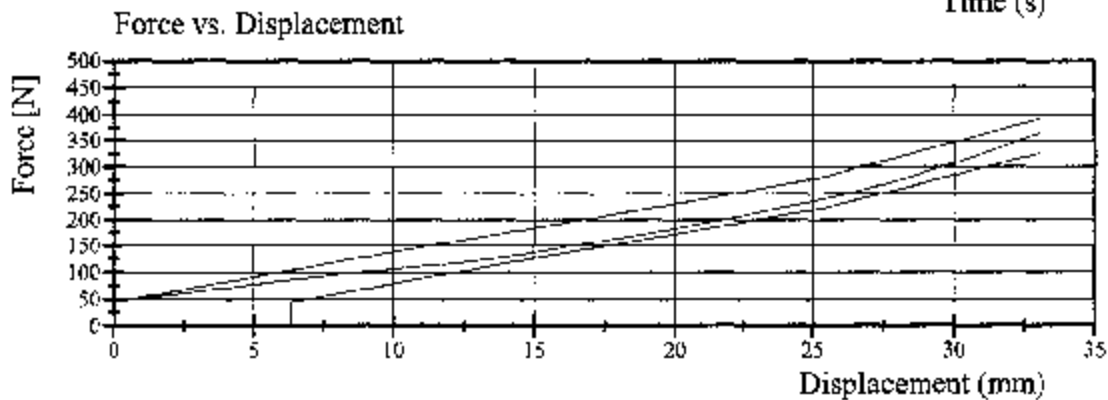
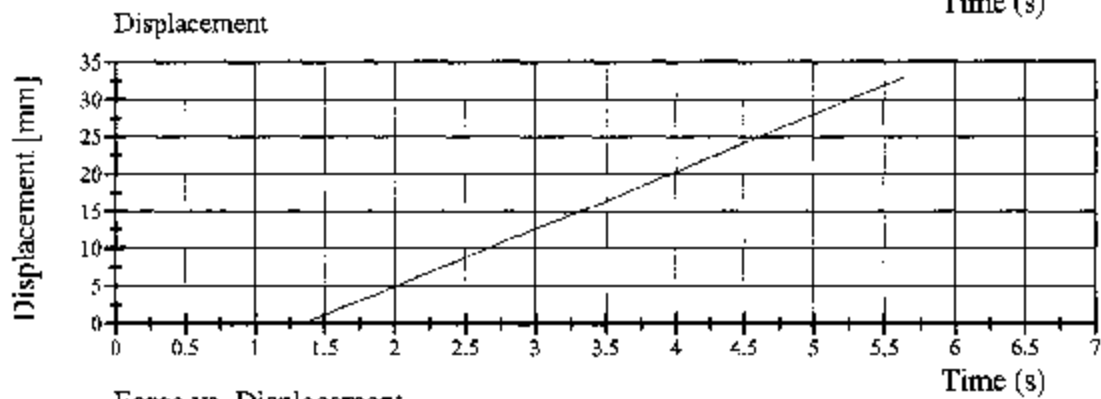
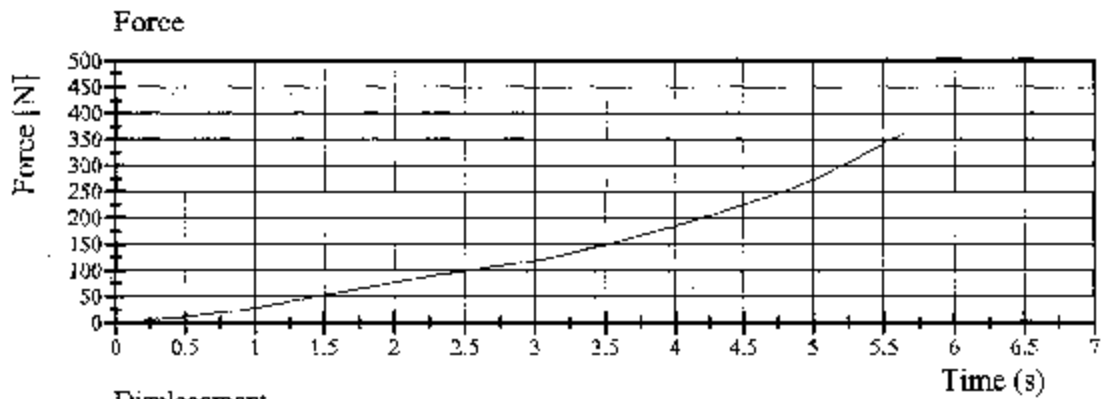


Transportation Research Center Inc.

572B Abdomen Compression Test

HIH SID Serial No. 028 Calibration No. 05 - 1

Test Date 04/16/2003



04.18.2003 09:12:05 98



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

16-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

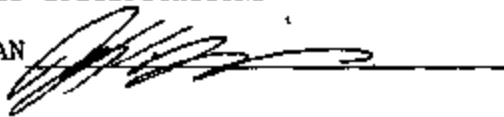
TEST NO: SPL02805

572F SNO28 LEFT PELVIS CAL05

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	41.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.30 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	48.4 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.2 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 041603.1024;1

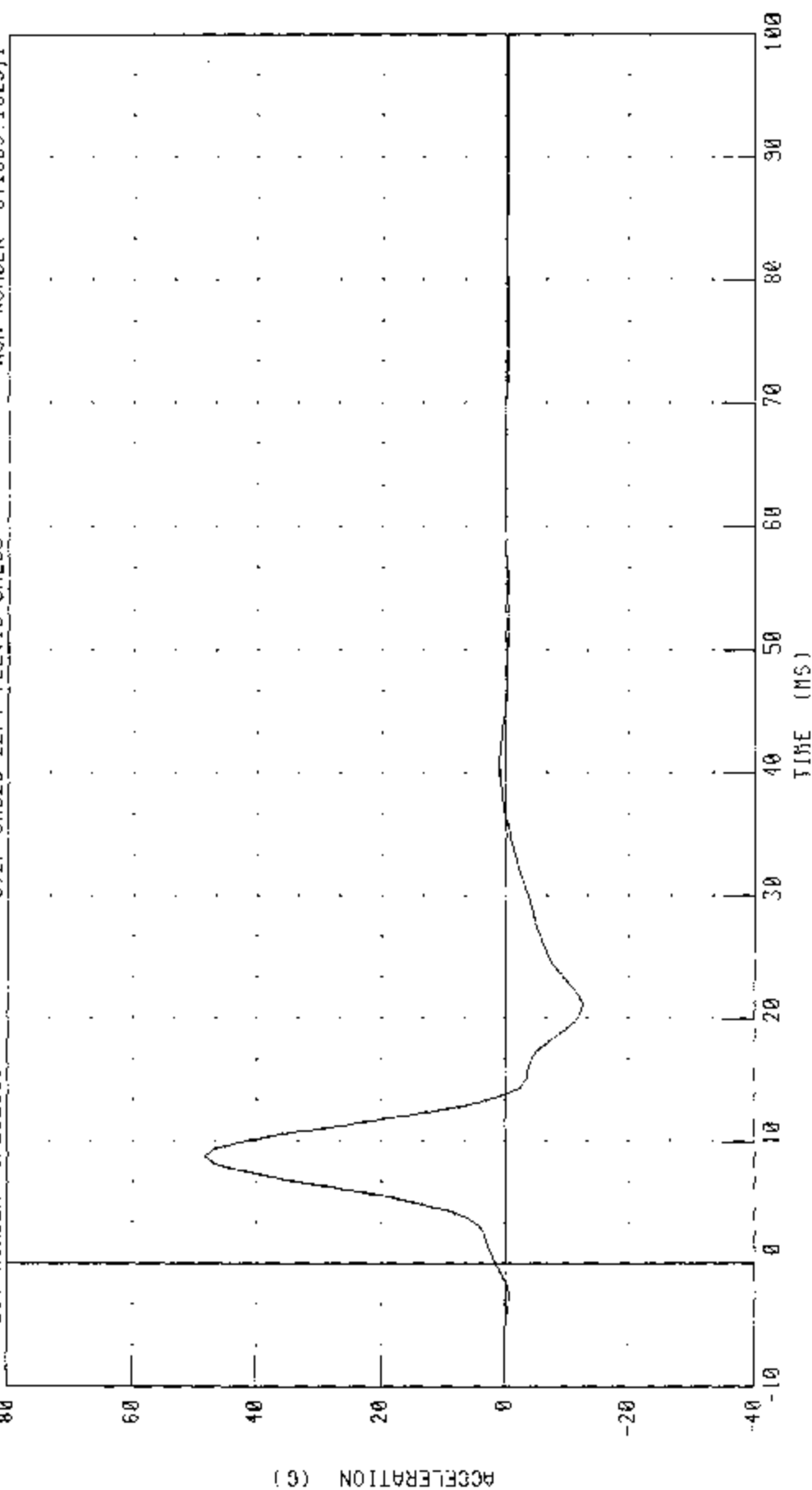
PART 572-F S.I.G. PELVIS CALIBRATION (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL02805

572F SN028 LEFT PELVIS CAL05

RUN NUMBER: 041603.1025;1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 43.40 G @ 8.75 MS; 12.52 G @ 21.25 MS

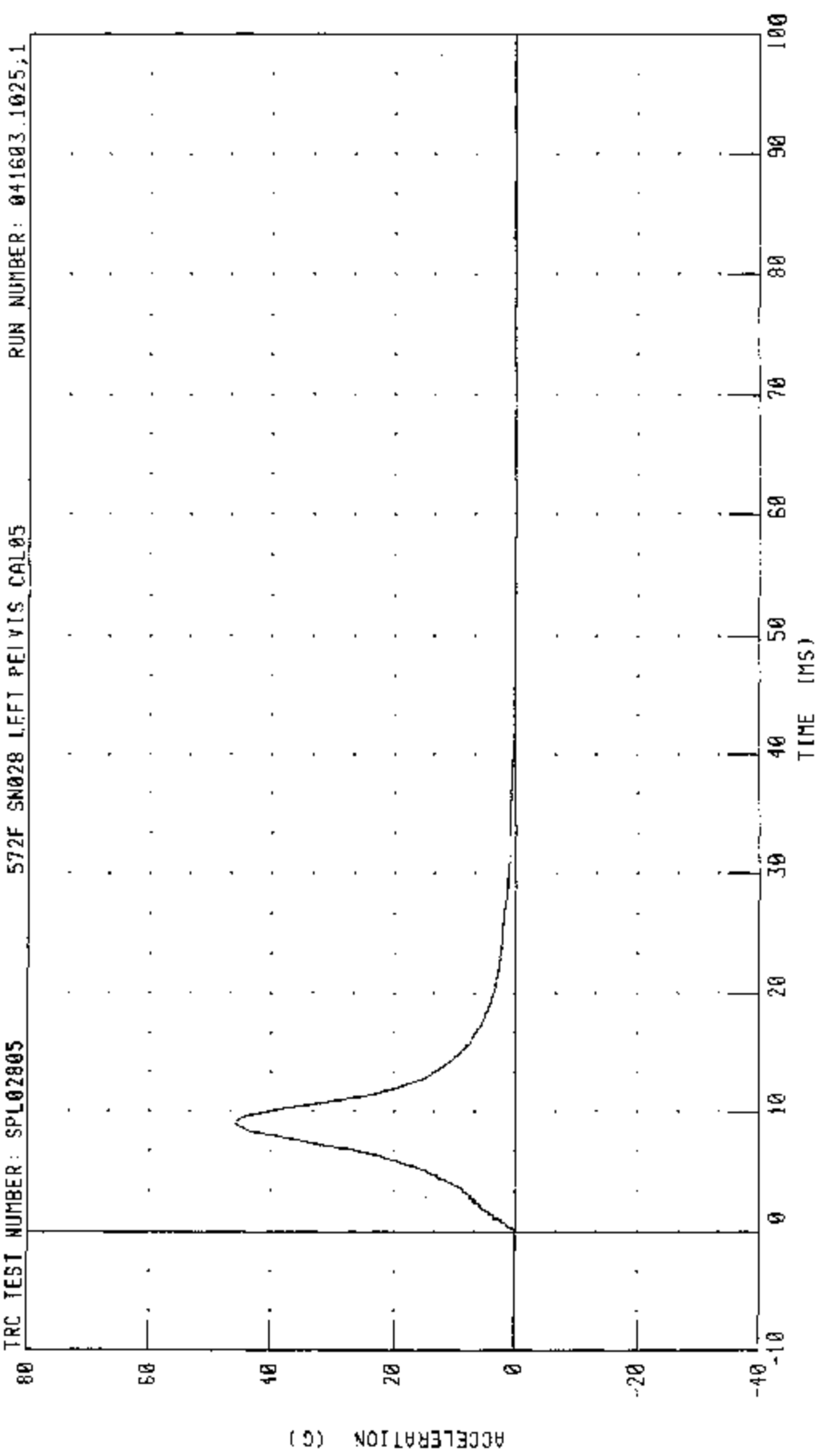
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL02805

572F SN028 LEFT PELVIS CAL05

RUN NUMBER: 041603.1025,1



CHANNEL PENXG FILTIER: CH CLASS 1000

PEAK DATA 45.71 G @ 9.34 MS; -0.03 G @ 51.44 MS

Calibration Test Results

Pre-Test

SID: 065

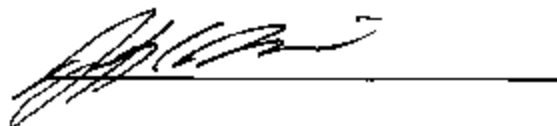
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements (tested on April 17, 2003 for a previous calibration series).
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

Transportation Research Center Inc.
572M SID/HIII Dummy
External Dimensions
Serial No. 065 Calibration No. 09

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	896 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	239 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	513 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	500 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	371 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	170 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	171 mm	Yes
Difference Between Top & Bottom Rib Width from CL		\leq 2.5 mm	1.0 mm	Yes

Technician



Approved



TTC

TRANSPORTATION RESEARCH CENTER INC.

LATERAL HEAD DROP TEST

SID/HIII DUMMY

25-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. HDL06509

572N SID/HIII SN065 HEAD CAL09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.11 deg. C
RELATIVE HUMIDITY	10 - 70 %	25.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	137.25 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	-10.26 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 042503.1431;1

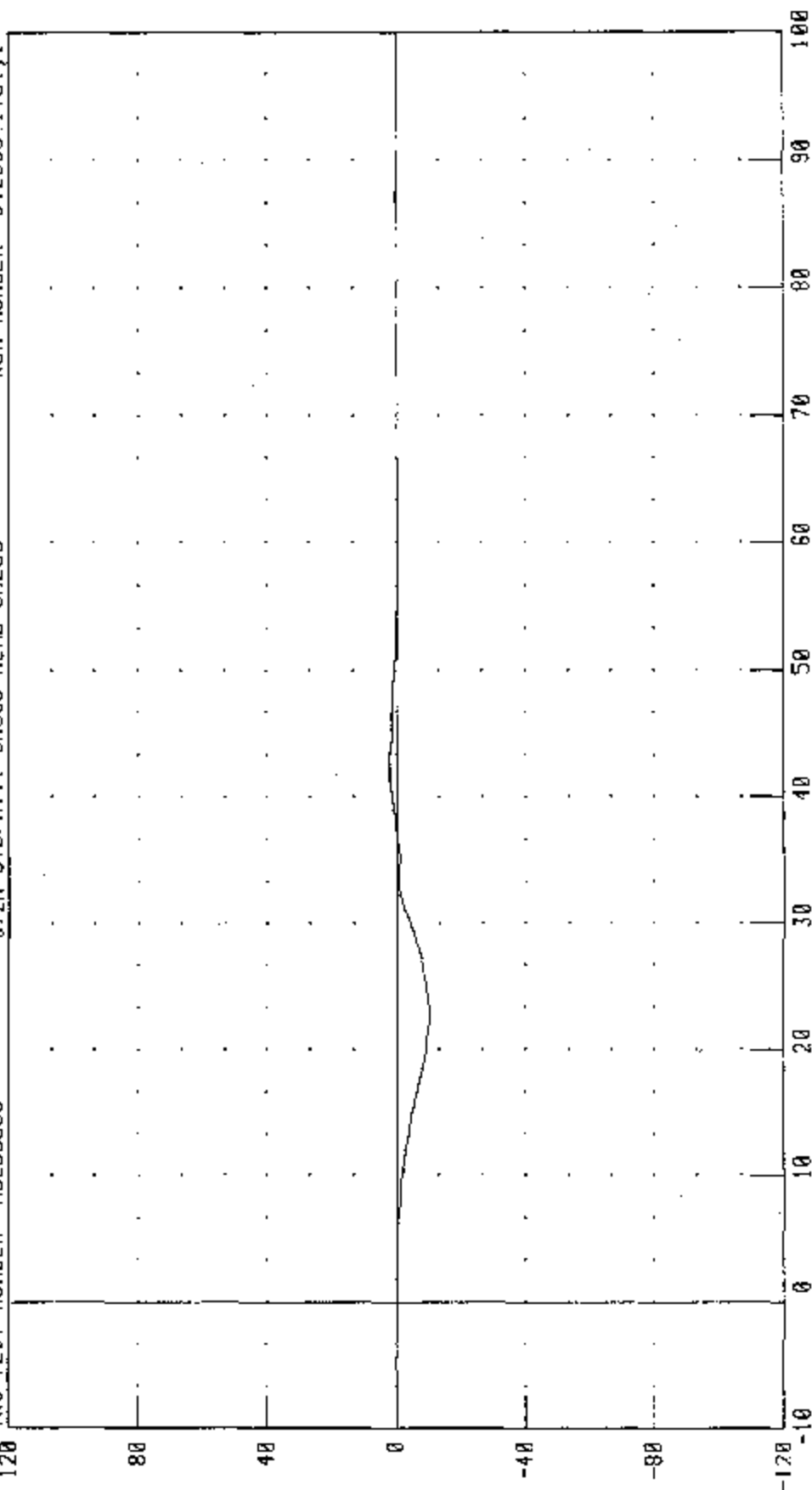
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: HDL06509

572M SID/HIII SN065 HEAD CAL09

RUN NUMBER: 042503.1431.1



PEAK DATA: 2.37 6 0 4.24 MS; -10.26 0 0 2.24 MS

CHANNEL: HEDXG FILTER: CH CLASS 1000

(C) NOTATION

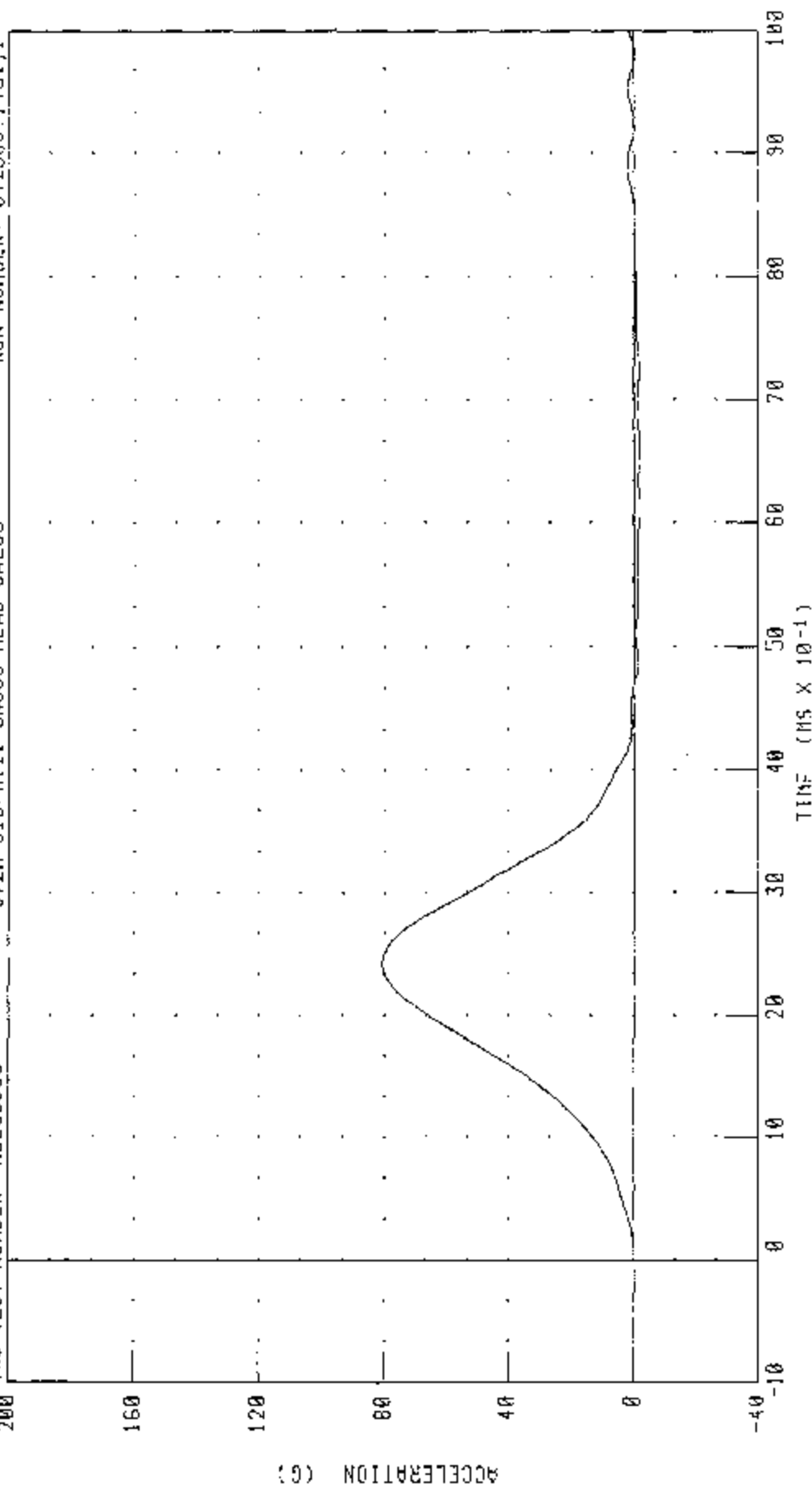
C-40

030430

572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: H0106509 572M SID/HIII SN065 HEAD CAL09 RUN NUMBER: 042503.1431;1



CHANNEL: JIEDYC FILTER: CHL CLASS 1000 PEAK DATA: 80.91 G @ 2.40 MS; -2 11 6 0 6.00 MS

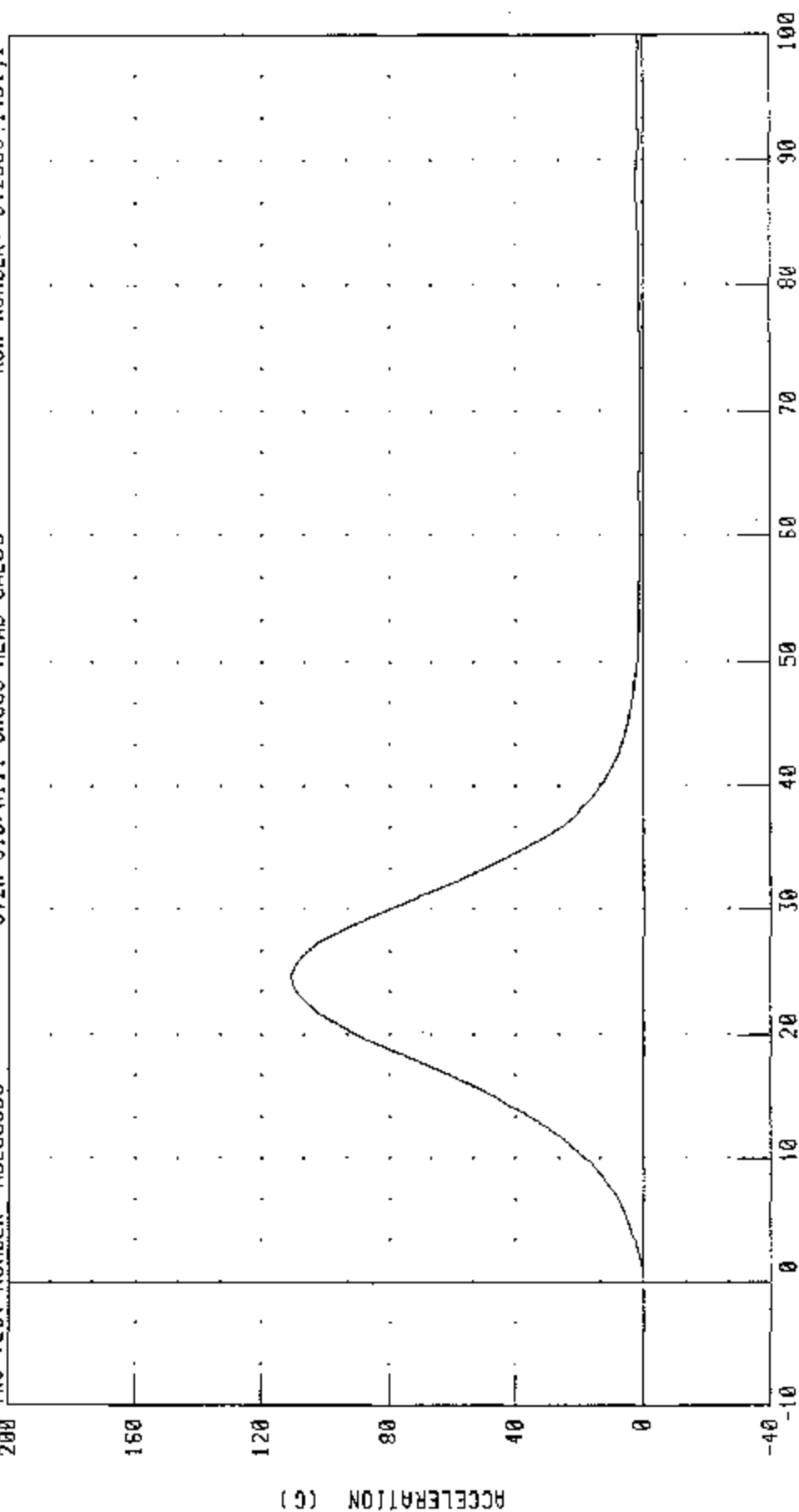
572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: HDL06509

572M SID/HIII SN065 HEAD CAL09

RUN NUMBER: 042503.1431;1



CHANNEL: HE0ZG FILTER: CH CLASS 1000

PEAK DATA: 110.66 G @ 2.48 MS; -0.13 G @ -0.64 MS

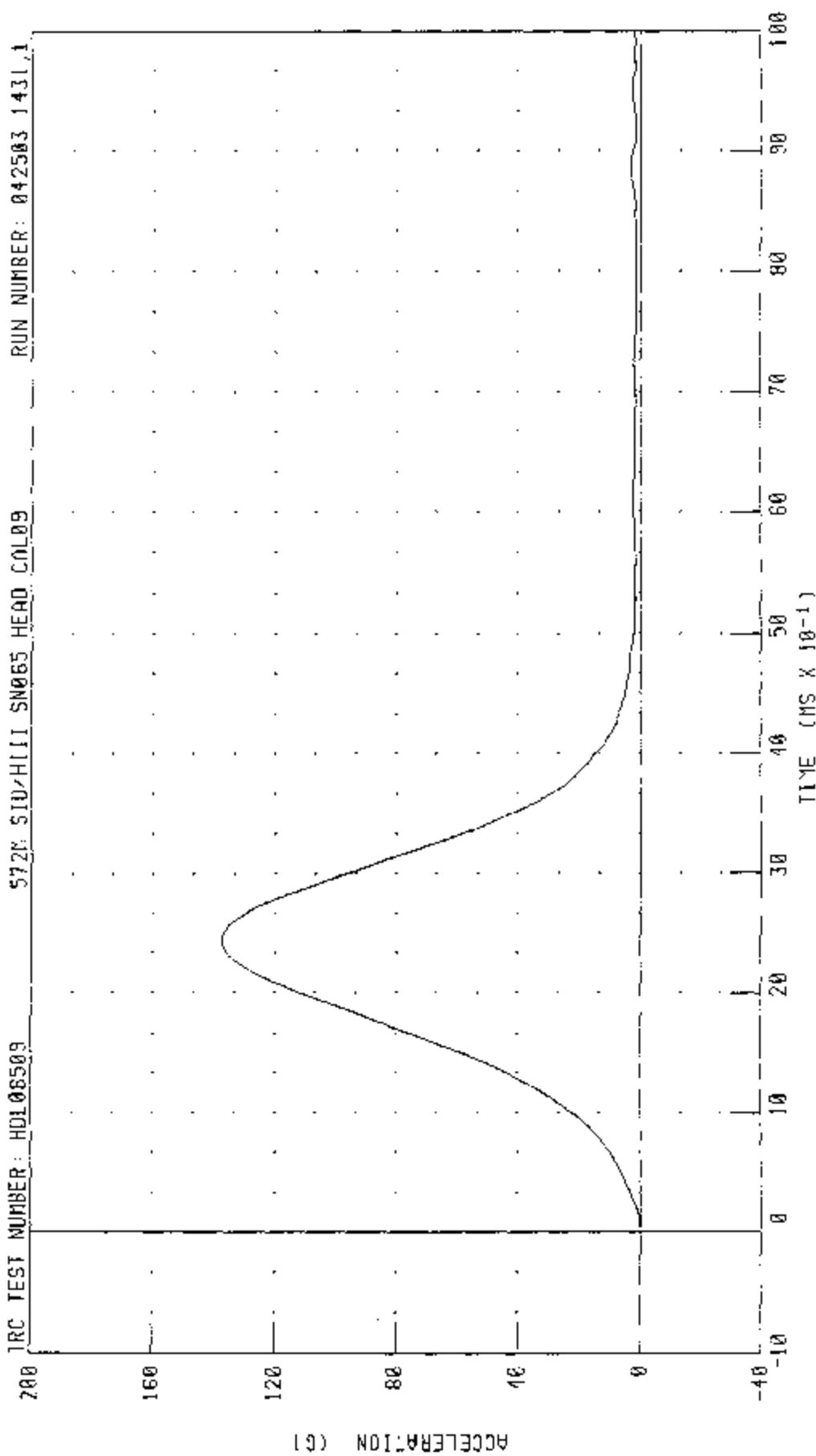
572M SID/HILL DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULTANT ACCELERATION

IRC TEST NUMBER: HD106509

572M SID/HILL SN065 HEAD COL09

RUN NUMBER: 042503 1431.1



TIME (MS X 10⁻¹)

CHANNEL: HFDRG FILTER: CH CLASS 1000

PEAK DATA: 137.25 G @ 25 MS, 0.03 G @ 0.08 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL NECK TEST

SID/HIII DUMMY

25-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

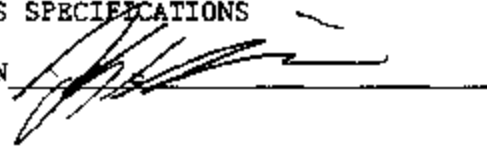
TEST NO. NFL06509

572M SID/HIII SN065 NECK CAL09

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.11 deg. C
RELATIVE HUMIDITY		10 - 70 %	25.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.46 M/S
	20 MS	4.12 - 5.10 M/S	4.84 M/S
	30 MS	5.73 - 7.01 M/S	6.76 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.08 - 7.18 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	69.99 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	60.40 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73 - 88 NM	81.72 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	51.44 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	8.00 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

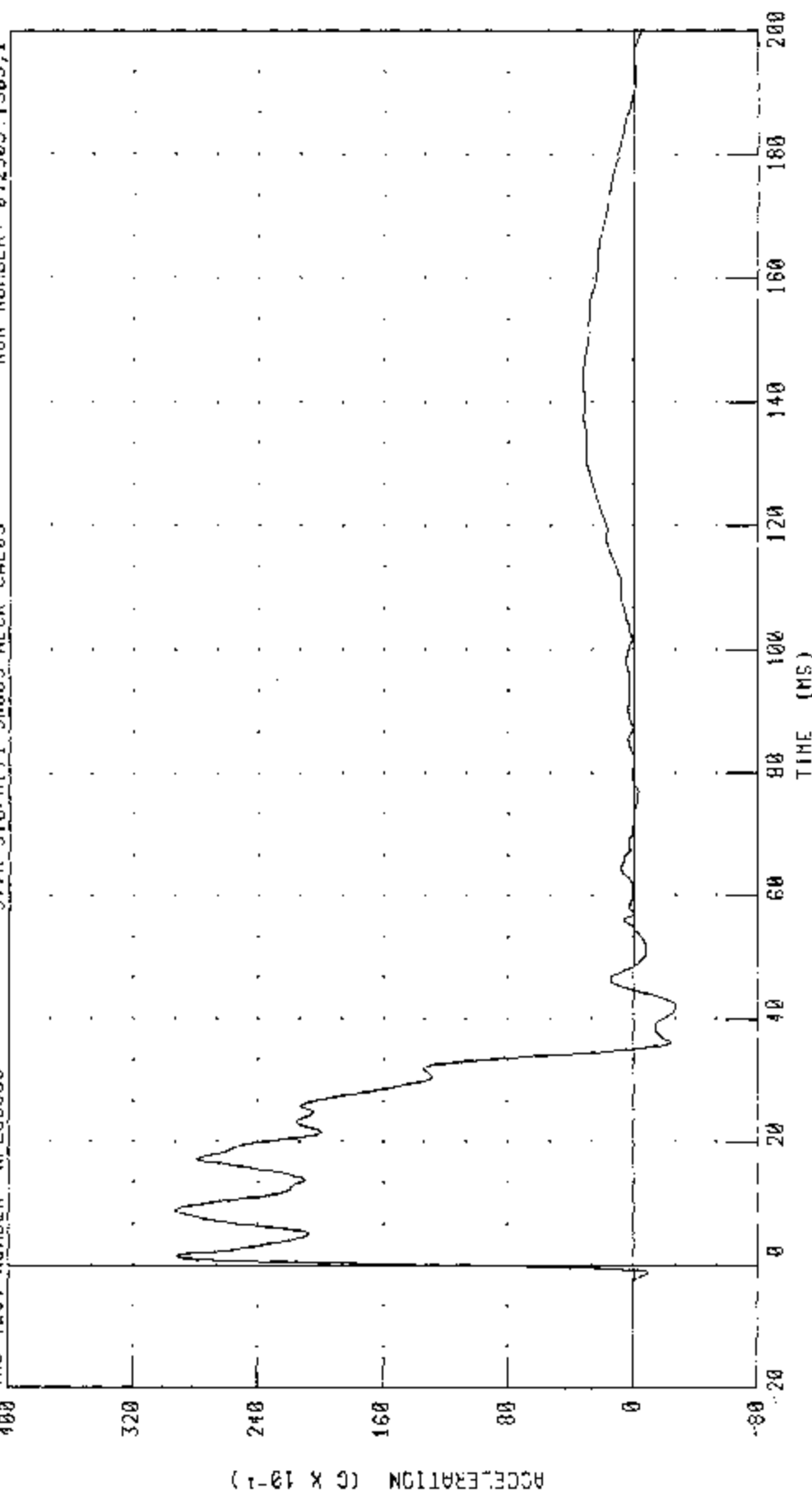


RUN NUMBER: 042503.1308;1

572M SID/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

TRC TEST NUMBER: NFL06509 572M SID/HIII SN065 NECK CAL09 RUN NUMBER: 042503.1508.1



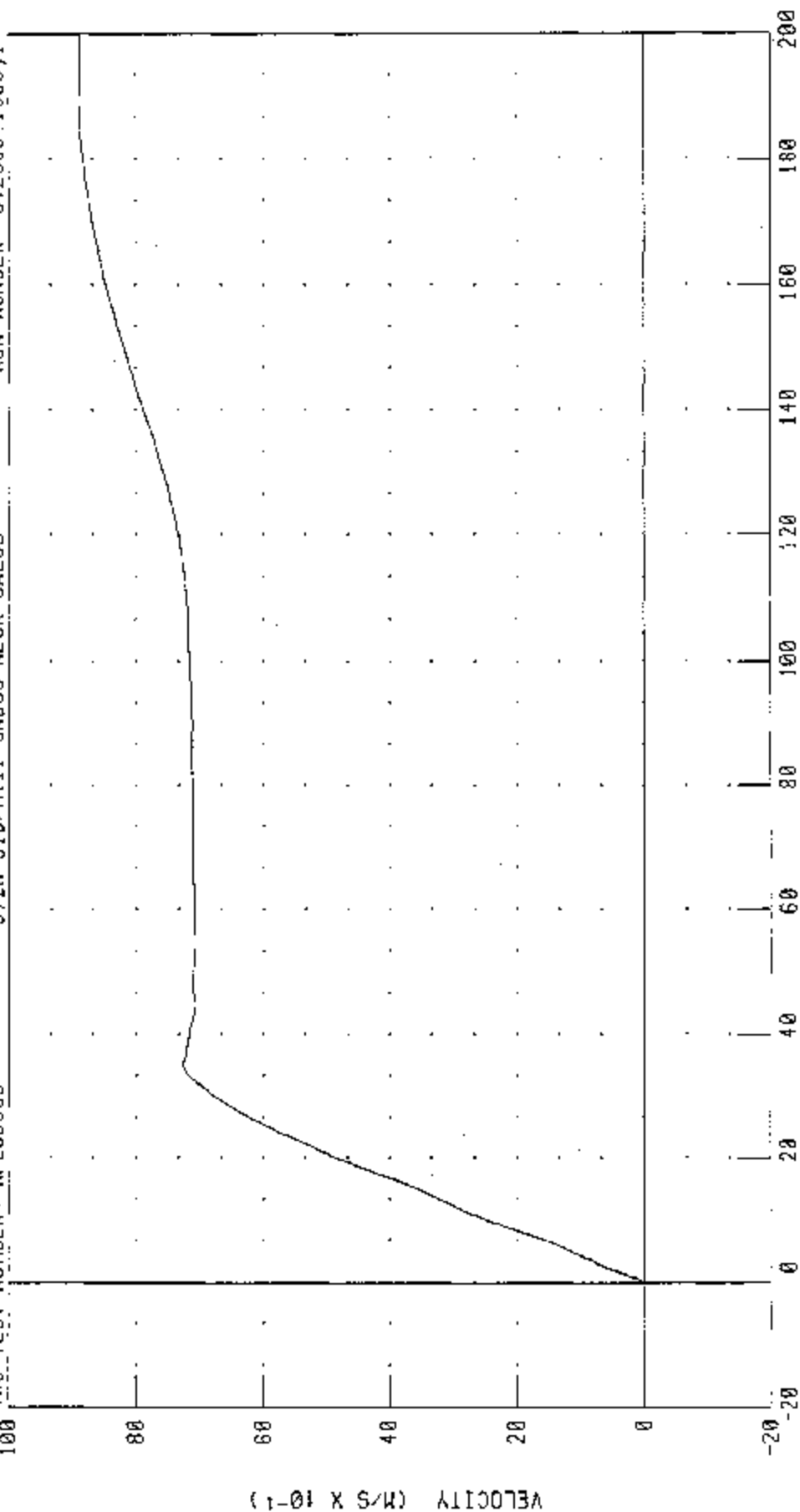
PEAK DATA: 28 28 0 3 36 MS, -2 73 0 0 12 08 MS

CHANNEL PENXC FILTER: CH. CLASS 180

572M SID/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

IPC TEST NUMBER: N106509 572M SID/HIII SN065 NECK CAL09 RUN NUMBER 042503.1309.1



TIME (MS)

CHANNEL: PENXVI FILTER: CH. CLASS 1B0

PEAK DATA: 8.07 M/S @ 190.48 MS, -0.01 M/S @ -0.72 MS

VELOCITY (M/S X 10-1)

572M SID/HILL DUMMY CALIBRATION -- LEFT LATERAL NECK IFST

ROTATION ABOUT BASE OF NECK

572M SID/HILL SN065 NECK CAL09

TRC TEST NUMBER: NFL06509

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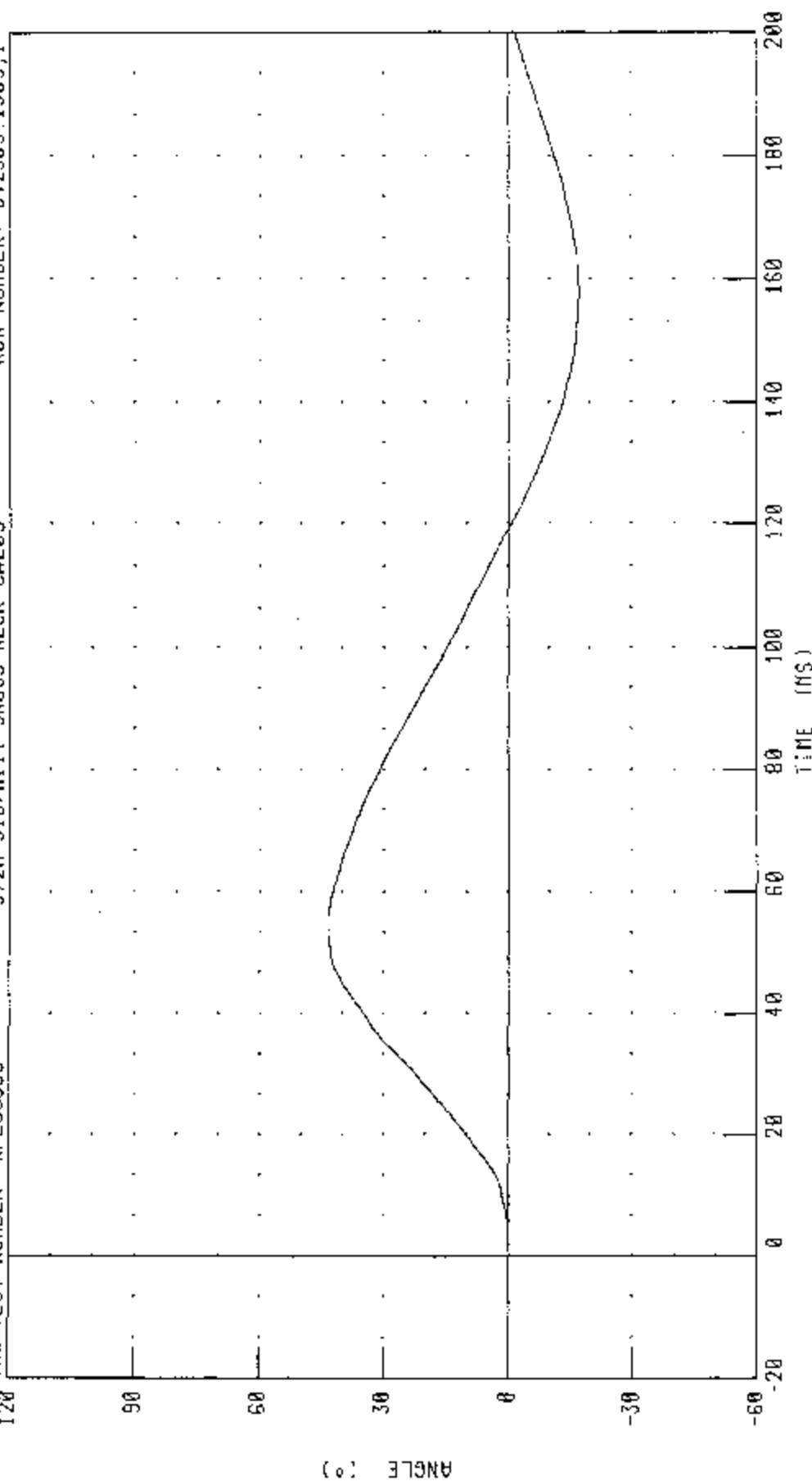
572M SID/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL06509

572M SID/HIII SN065 NECK CAL09

RUN NUMBER: 042503.1309.1



CHANNEL: THE1A FILTER: CH. CLASS 60

PEAK DATA: 43.65 ± 0.54.72 MS; -17.24 ± 0.157.76 MS

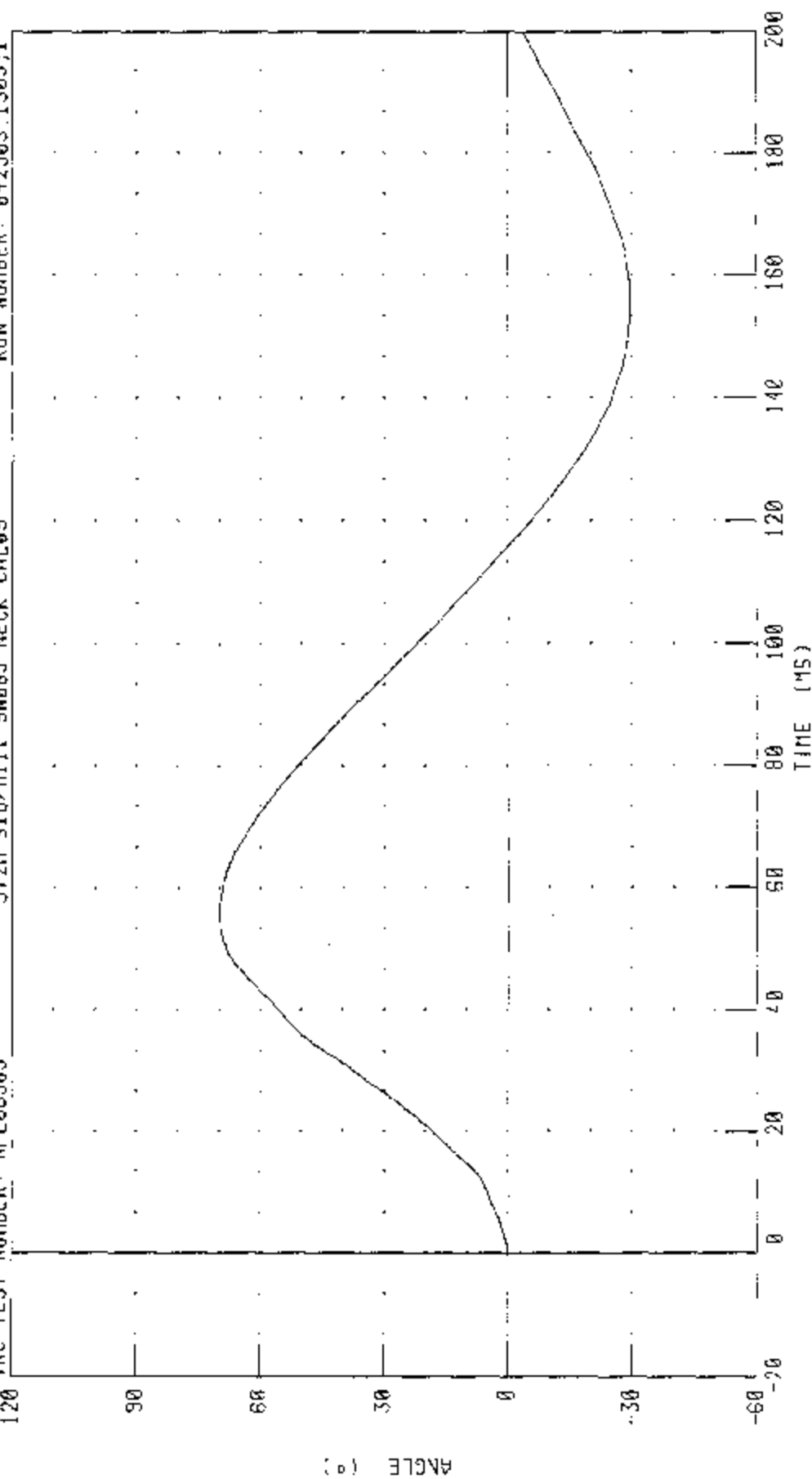
572M SID/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

IRC TEST NUMBER: NFL06509

572M SID/HIII SN065 NECK CAL09

RUN NUMBER: 042503.1309.1



CHANNEL: TOTAL

FILTER: CH. CLASS 60

TIME (ms)

PEAK DATA: 69.99 ° @ 55.60 MS; -73.64 ° @ 156.40 MS

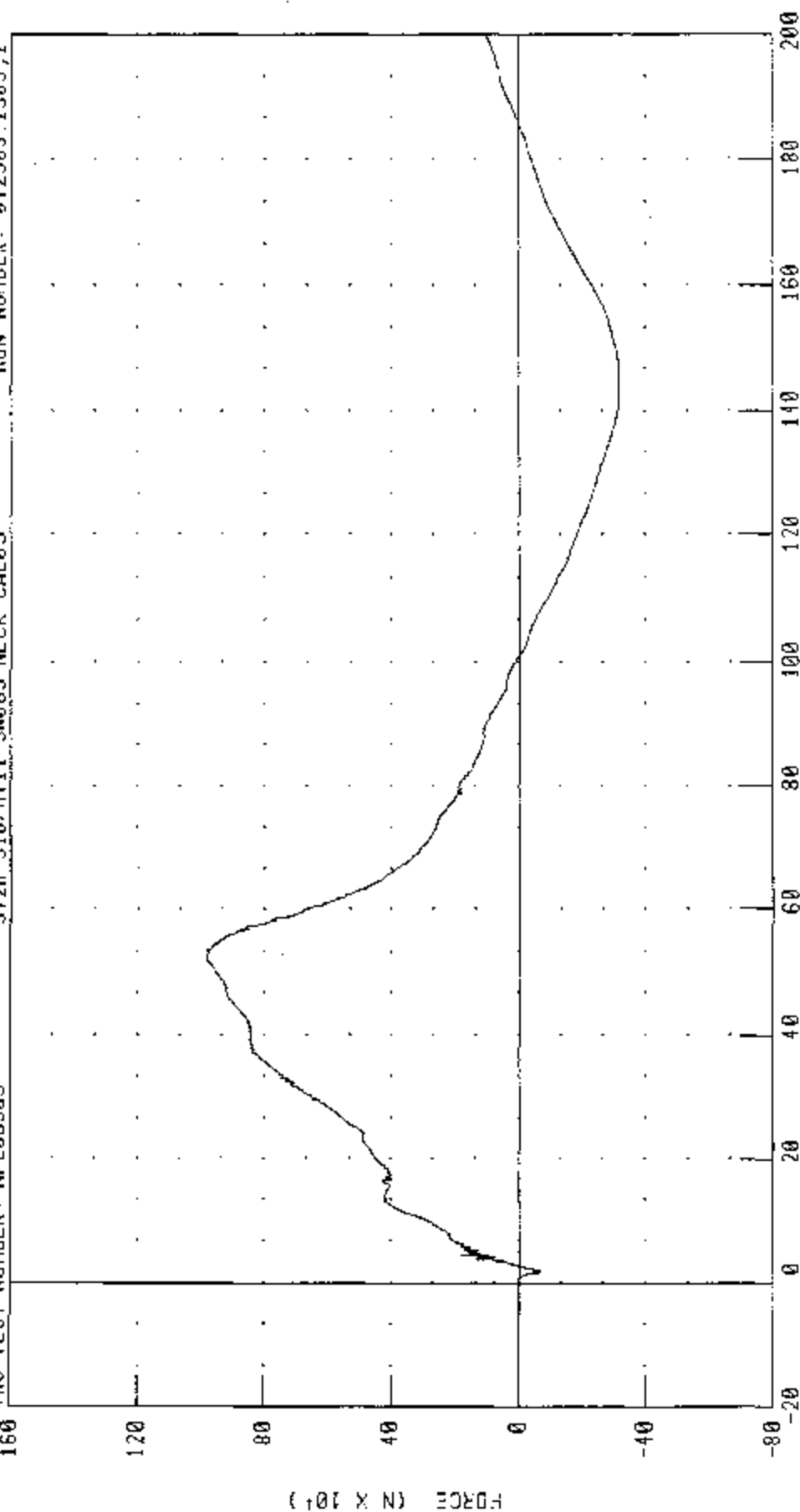
572M SID/H111 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

TRC TEST NUMBER: NFL06509

572M SID/H111 SM065 NECK CAL09

RUN NUMBER: 042503.1309.1



TIME (MS)

CHANNEL: NERYF FILTER: CH CLASS 1000

PEAK DATA: 918.96 N @ 52.08 MS; -318.12 N @ 143.84 MS

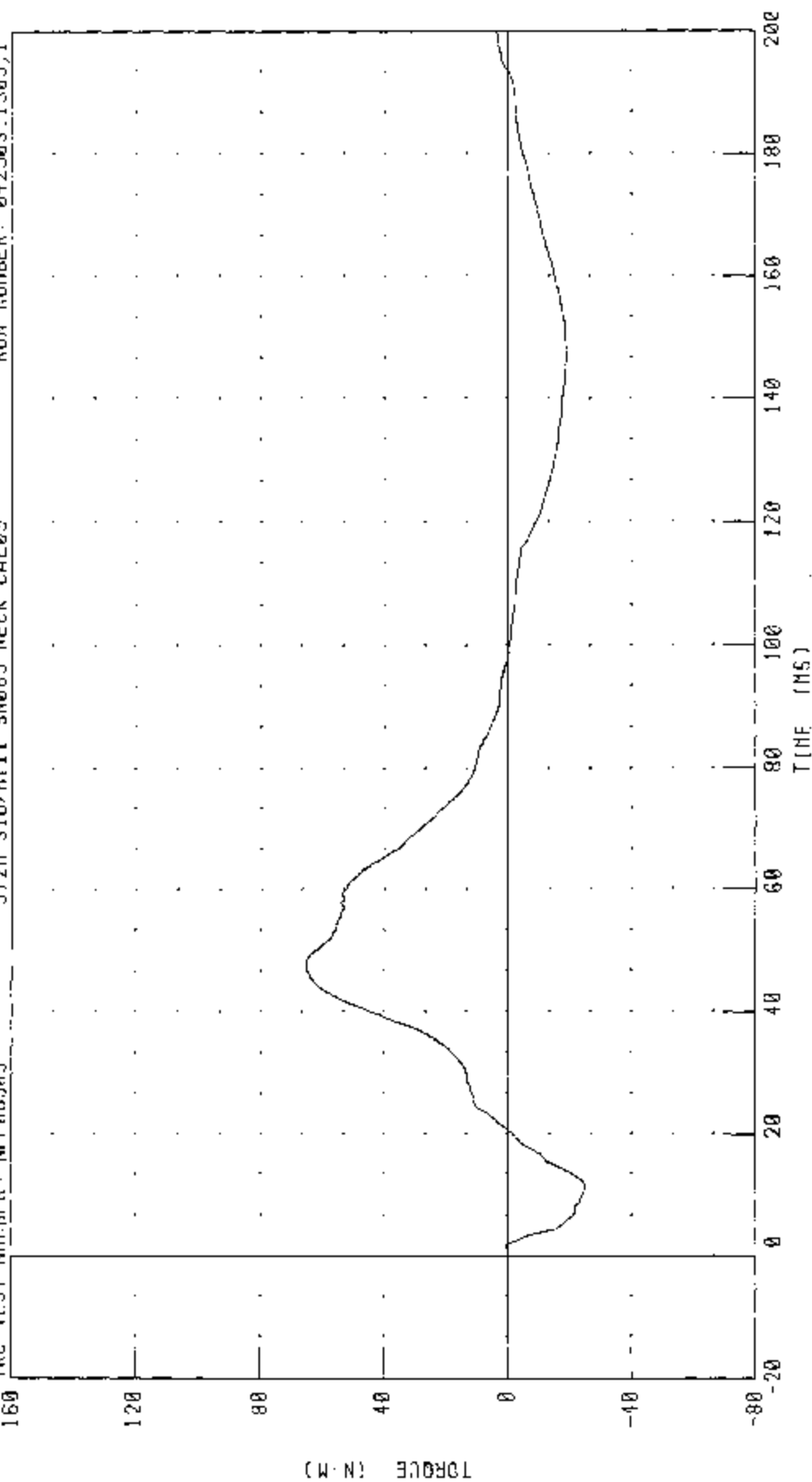
572M SIU/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

TRC TEST NUMBER: NFI06509

572M SIU/HIII SN065 NECK CAL09

RUN NUMBER: 042503.1309.1



PEAK DATA 55.37 N M @ 47.44 MS, 24.87 N M @ 11.28 MS

CHANNEL: NECKXII FILTER: CII CLASS 600

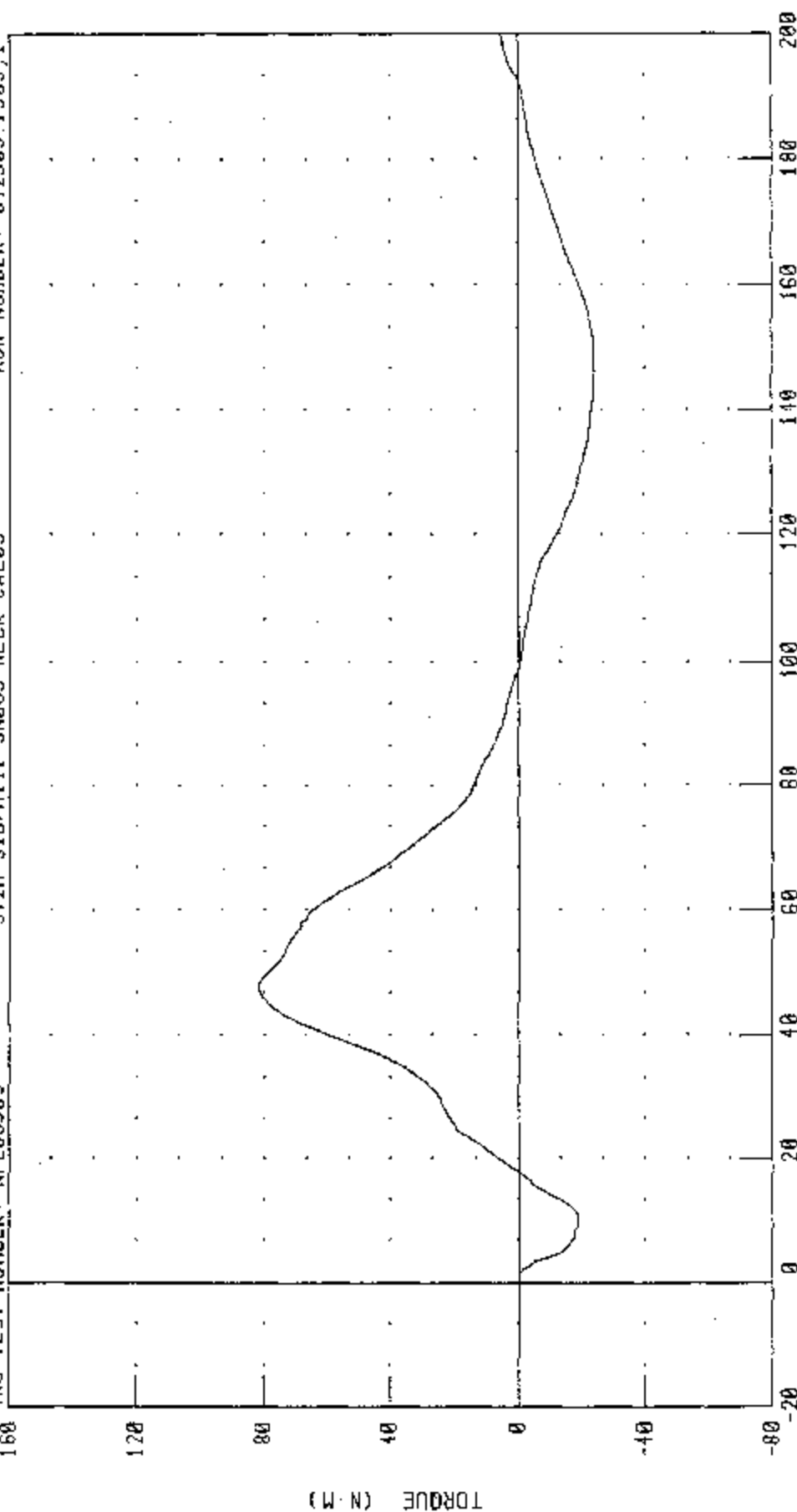
572M SID/HIII DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL06509

572M SID/HIII SN065 NECK CAL09

RUN NUMBER: 042503.1309.1



TIME (MS)

CHANNEL: NEKOM FILTER: CHL CLASS 600

PEAK DATA: 8) 72 N H 0 47 60 MS; -24 32 N H 0 146 56 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

25-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL06509

572F SID SN065 L.THORAX CAL09

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	26.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.25 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	40.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.1 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 042503.0928;1

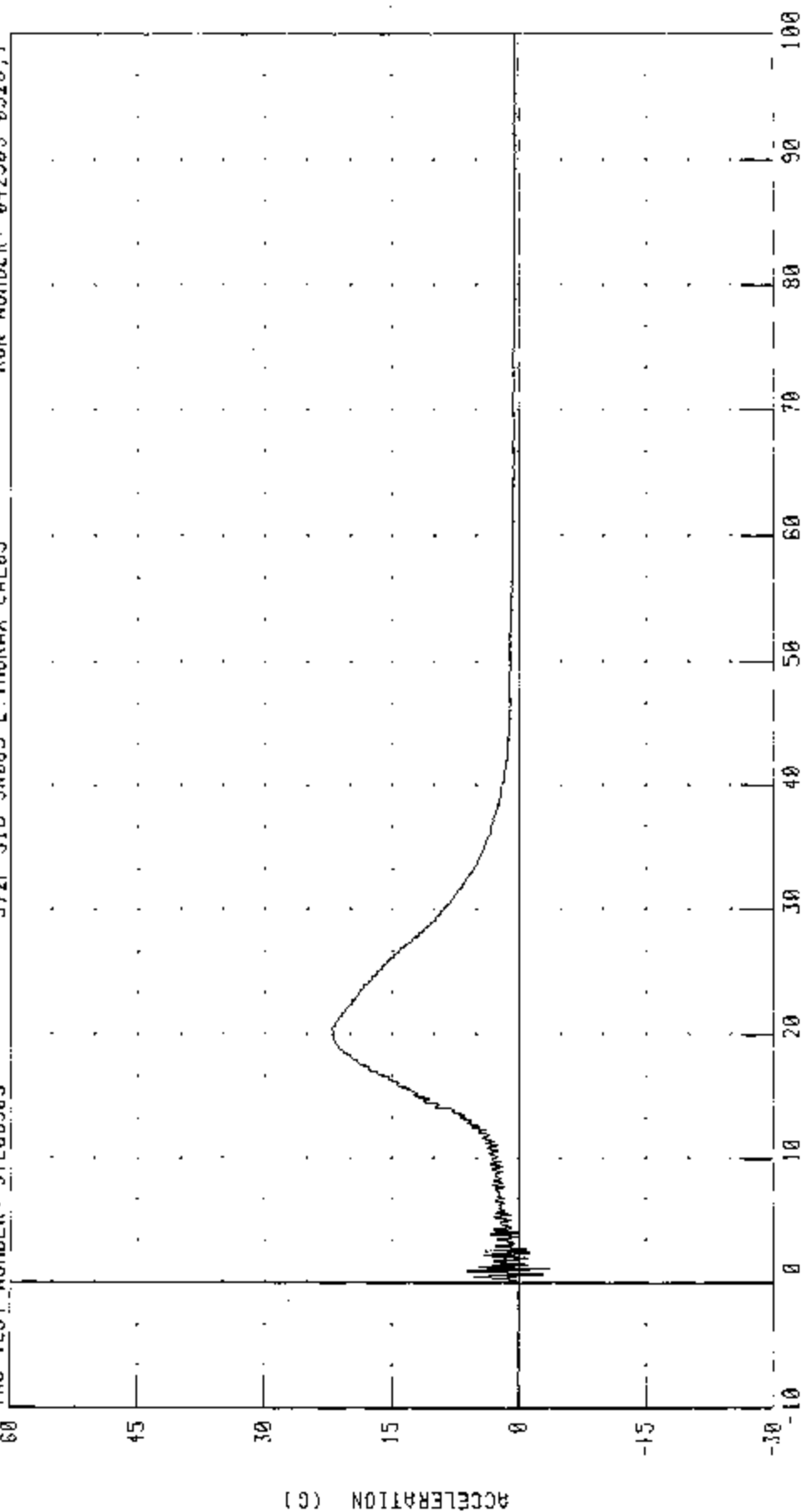
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL06509

572F SID S0065 L THORAX CAL09

RUN NUMBER: 042503 0928,1



TIME (MS)

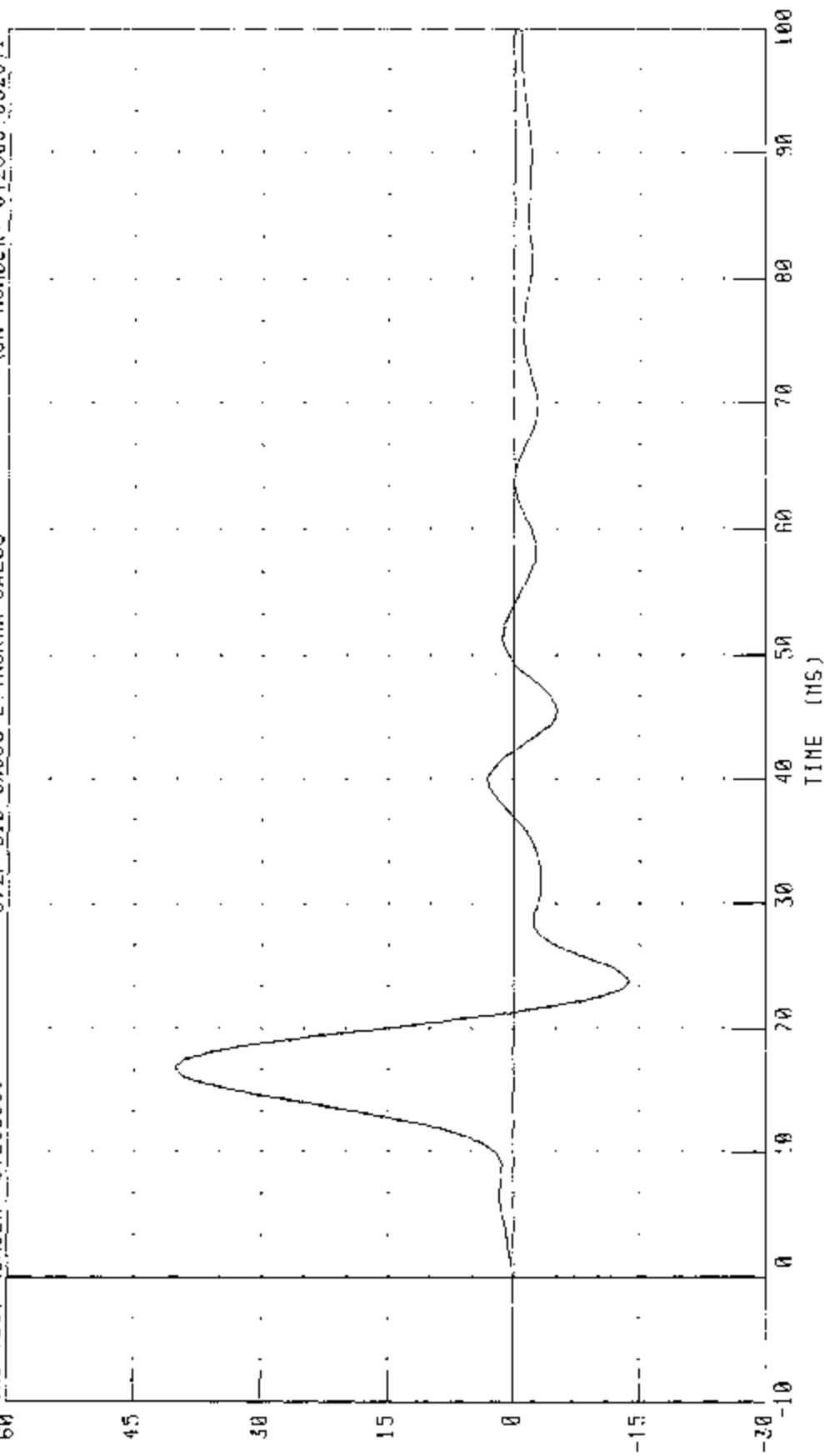
CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 22.11 G @ 20.40 MS, -3.65 G @ 1.04 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: 51106509 572F SID SW065 L THORAX CAL09 RUN NUMBER: 042503 0928.1



PEAK DATA: 40 25 G @ 16 87 MS, -13.82 G @ 23 75 MS

CHANNEL: LURYC FILTER FIR 100

(9) ACCELERATION (G)

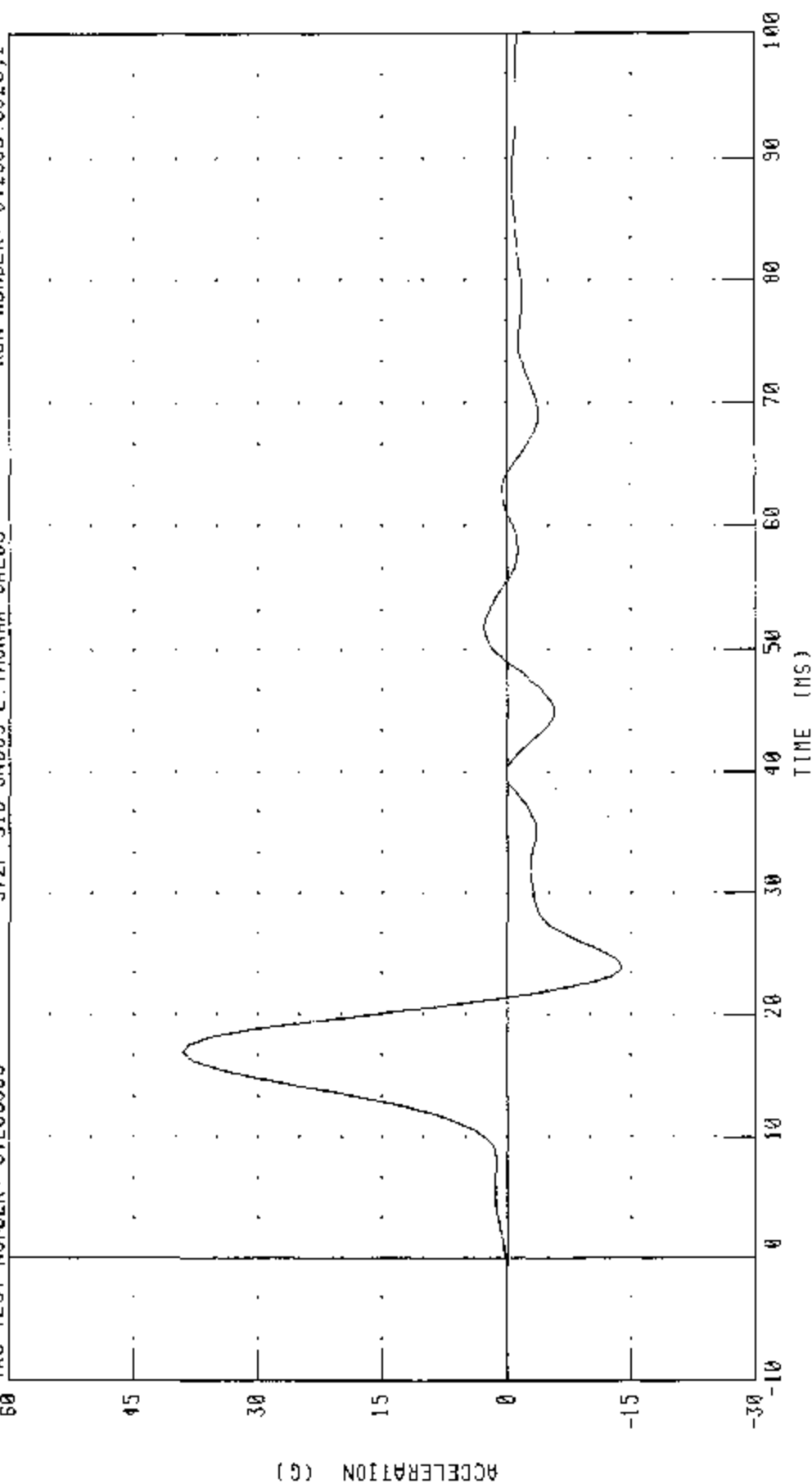
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06509

572F SID SN065 L THORAX CAL09

RUN NUMBER: 042503.0928;1



CHANNEL: LERYC FILTER: FIR 100

TIME (MS)

PEAK DATA: 39.09 G @ 16.07 MS, -13.87 G @ 23.75 MS

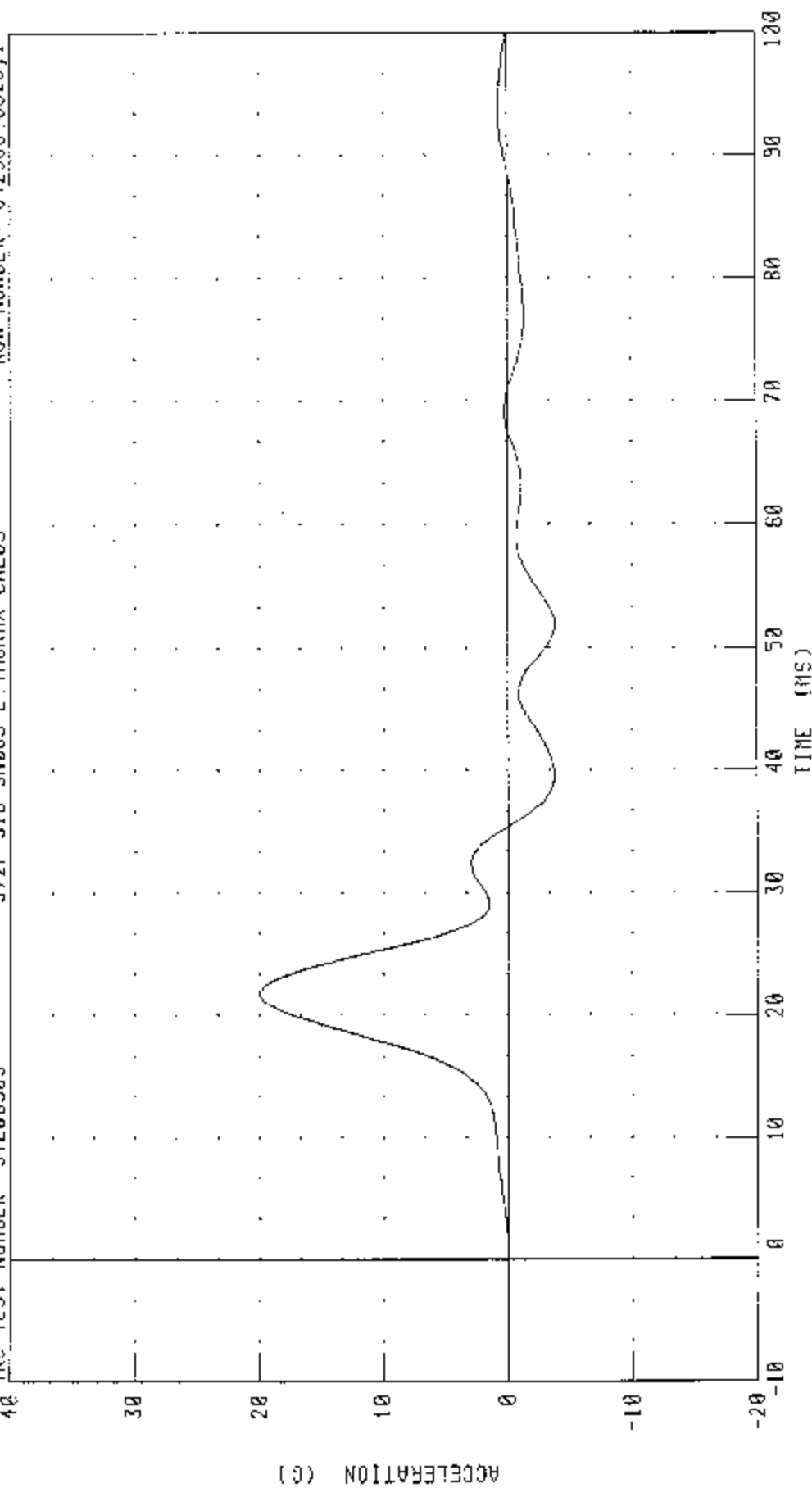
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06509

572F SID SN065 L THORAX CAL09

RUN NUMBER: 042503.0928,1



CIRNNEL T12YG FILTER: FIR 100

PEAK DATA: 20.07 G @ 21.00 MS, -3.80 G @ 51.88 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

17-APR-03

TRC INC.

572F SNO65 DAMPER TEST CAL08

TEST NUMBERS: DP06508A, DP06508B, DP06508C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	38.0 %
VELOCITY	FORCE	683 - 944 N	840 N
2.78 M/S	DISPLACEMENT	29.8 - 34.6 MM	32.2 MM
VELOCITY	FORCE	1733 - 2100 N	2005 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.4 MM
VELOCITY	FORCE	3824 - 4542 N	4040 N
6.14 M/S	DISPLACEMENT	33.3 - 39.6 MM	38.4 MM

DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 041703.1401;1

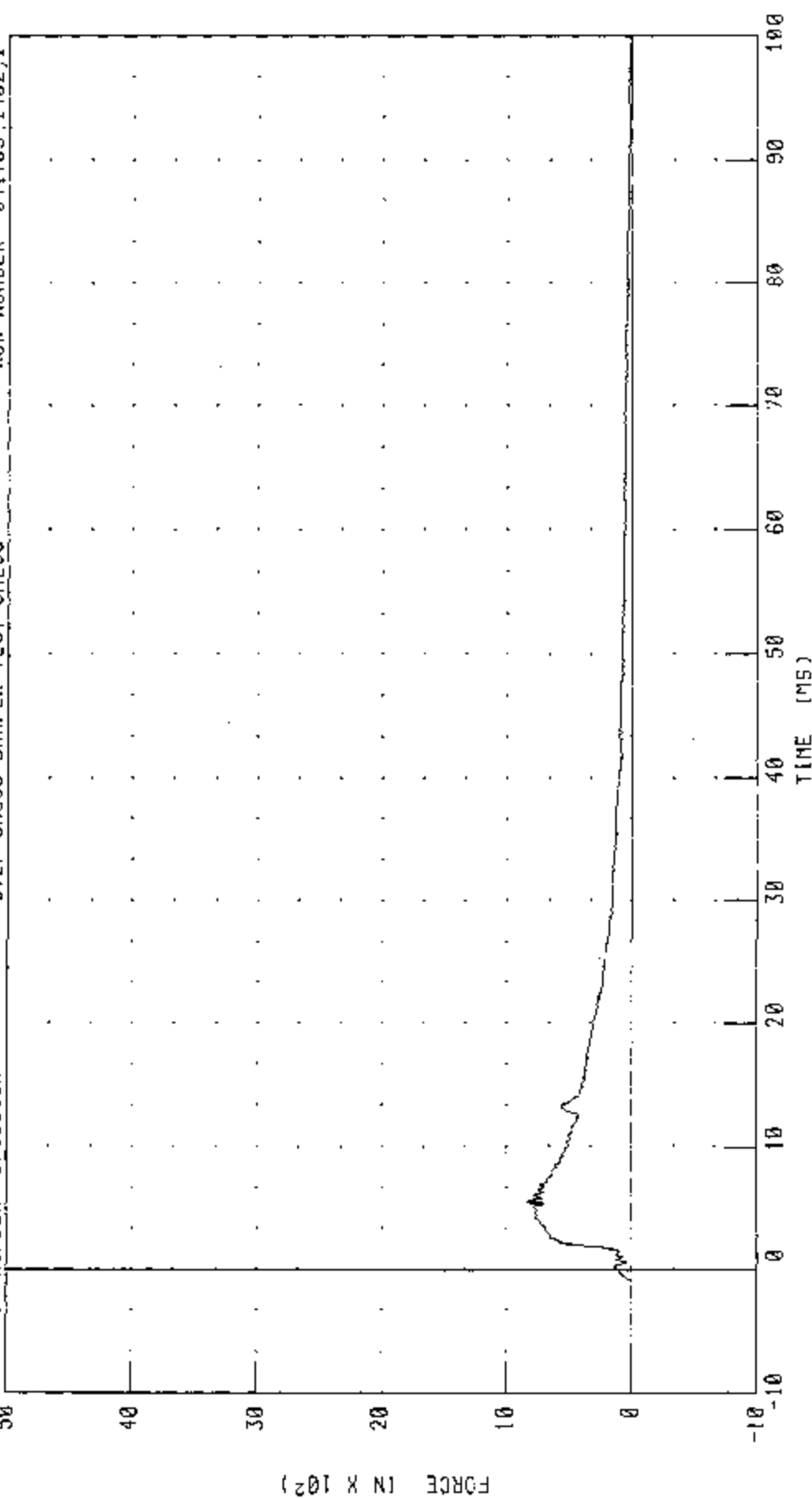
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06508A

572F SN065 DAMPER TEST CAL08

RUN NUMBER: 041703.1402.1



CHANNEL: DAMPF

FILTER: CH. CLASS 1000

PEAK DATA: 839.51 N @ 5.60 MS;

-1.68 N @ -0.64 MS

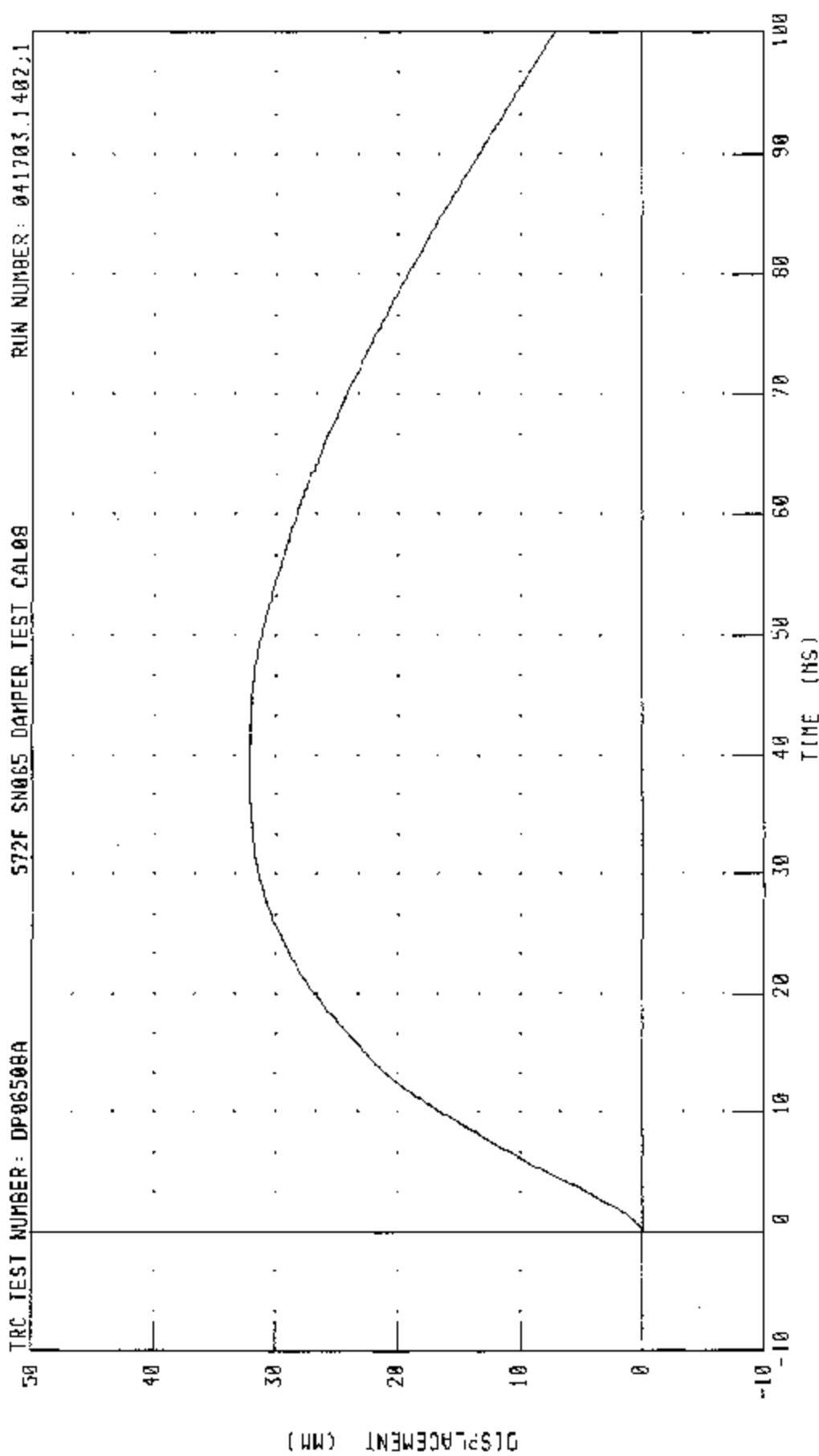
PART 572-F S I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06508A

572F SN065 DAMPER TEST CAL08

RUN NUMBER: 041703.1402.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

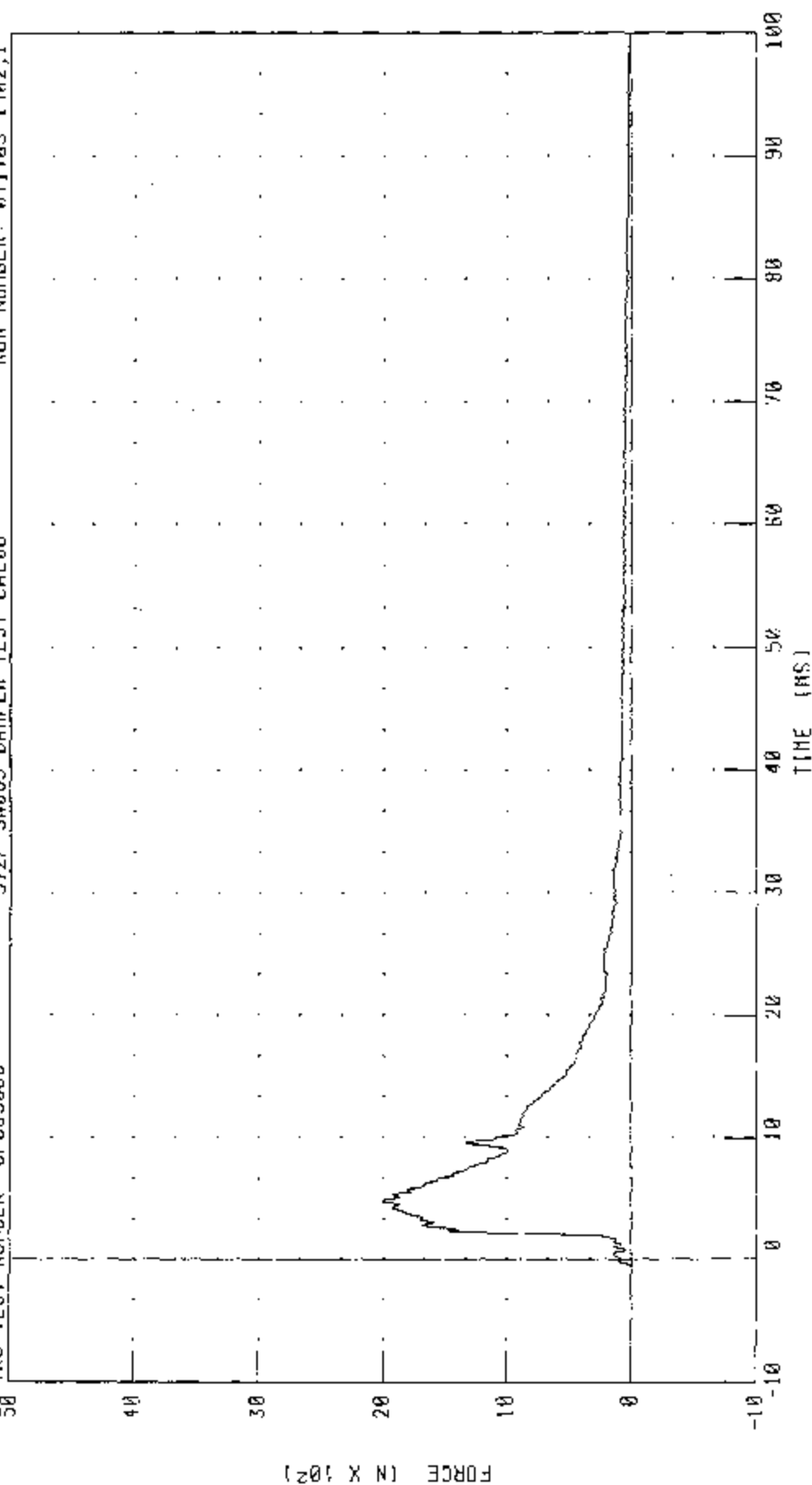
PART 572-F S I D. THORACIC SHOCK ABSORBER CALIBRATION (4 3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06508B

572F SH065 DAMPER TEST CAL08

RUN NUMBER: 041703 1402;1



CHANNEL: DAMPF FILTER: CH CLASS 1300

PEAK DATA: 2001 54 N @ 1 80 MS; -2 26 N @ -5.80 MS

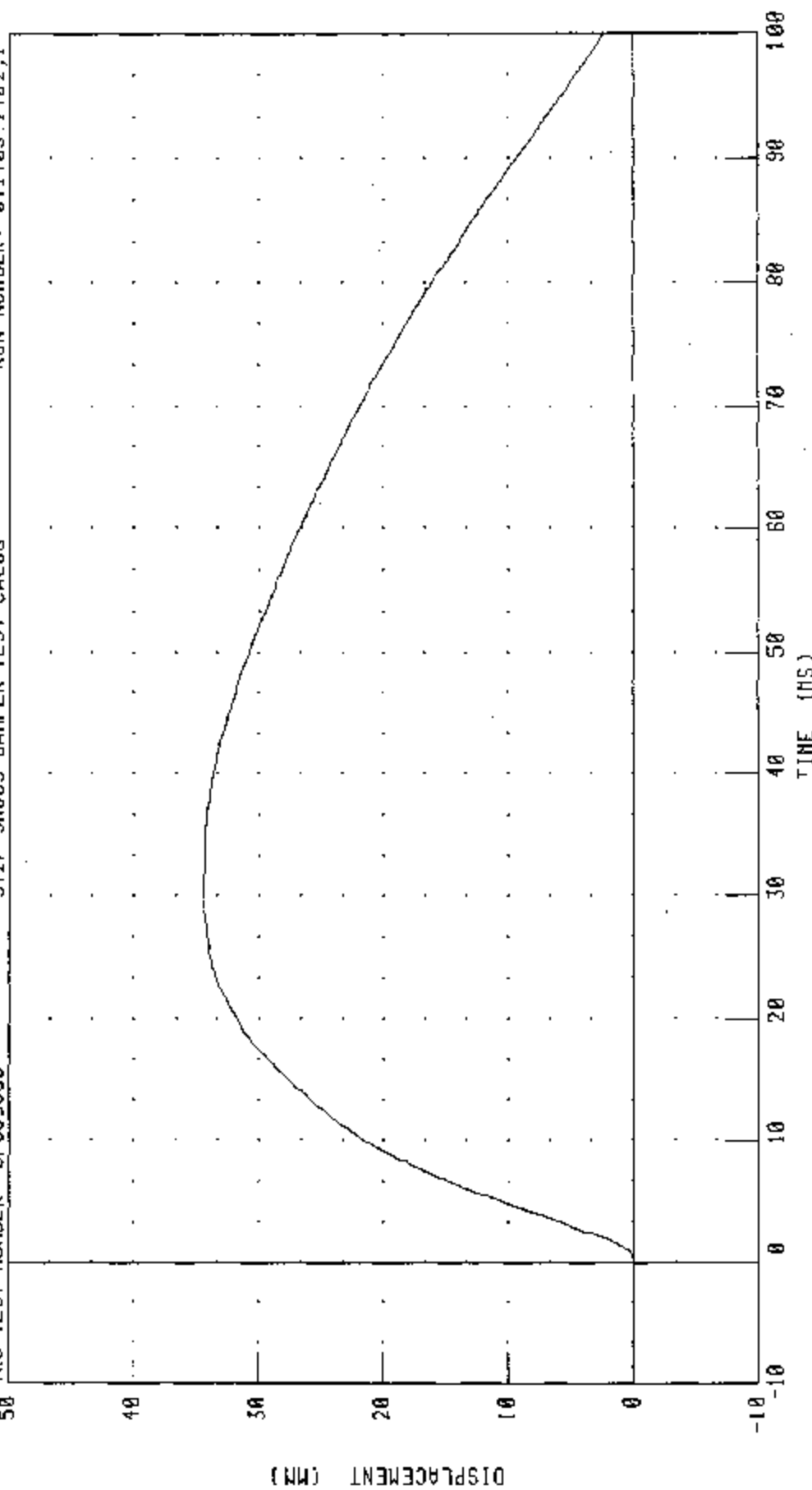
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP065088

572F SN065 DAMPER TEST CAL08

RUN NUMBER: 041703.1402.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 34.36 MS @ 38.64 MS; 0.00 MM @ -9.52 MS

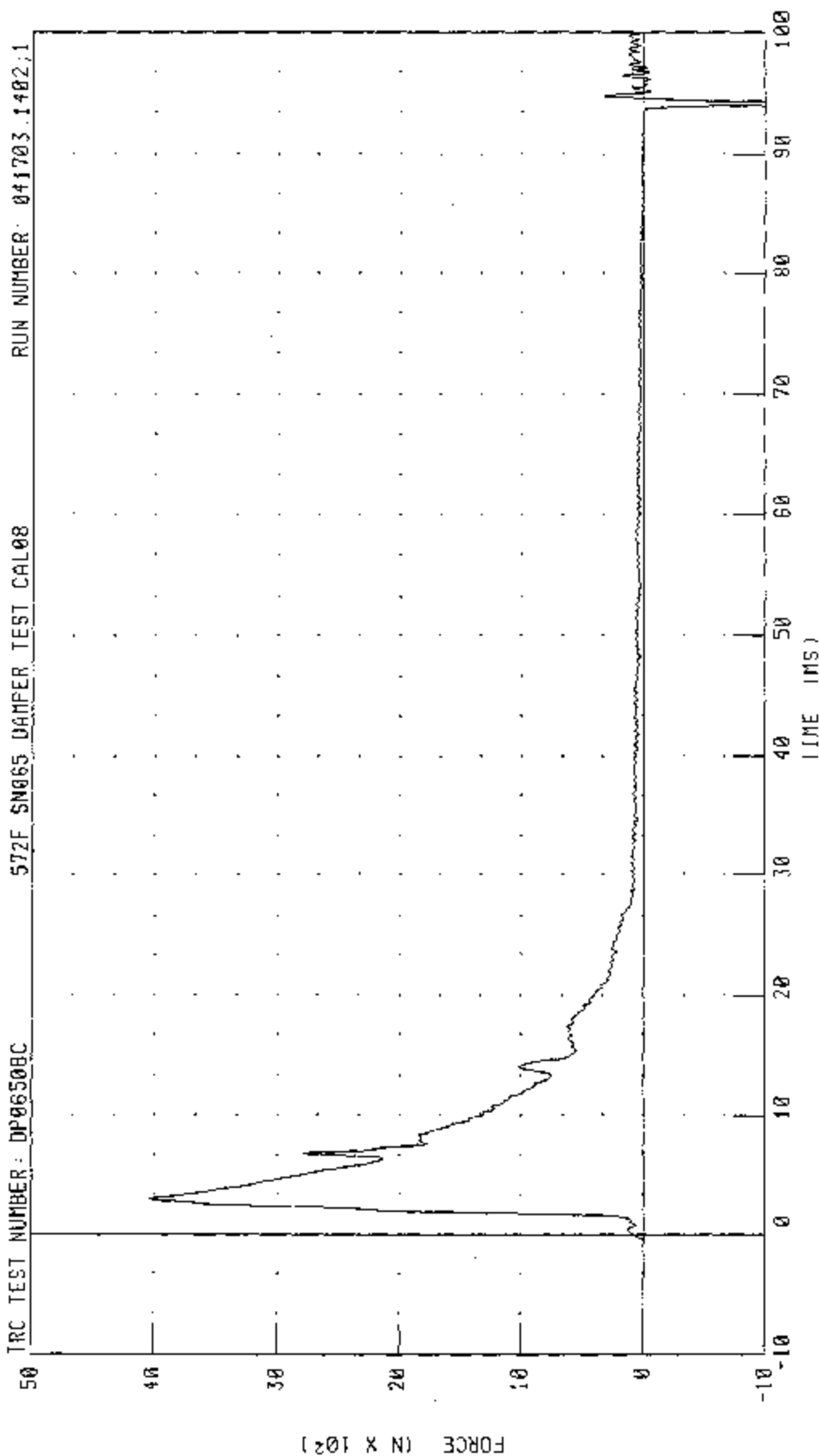
PART 577-F S.I.U. HYDRAULIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP0650BC

572F SN065 DAMPER TEST CAL08

RUN NUMBER: 041703.1402.1



CHANNEL: DAMP FILTER: CH. CLASS 1000

PEAK DATA 4040.25 N @ 3.04 MS, -2244.23 N @ 91.08 MS

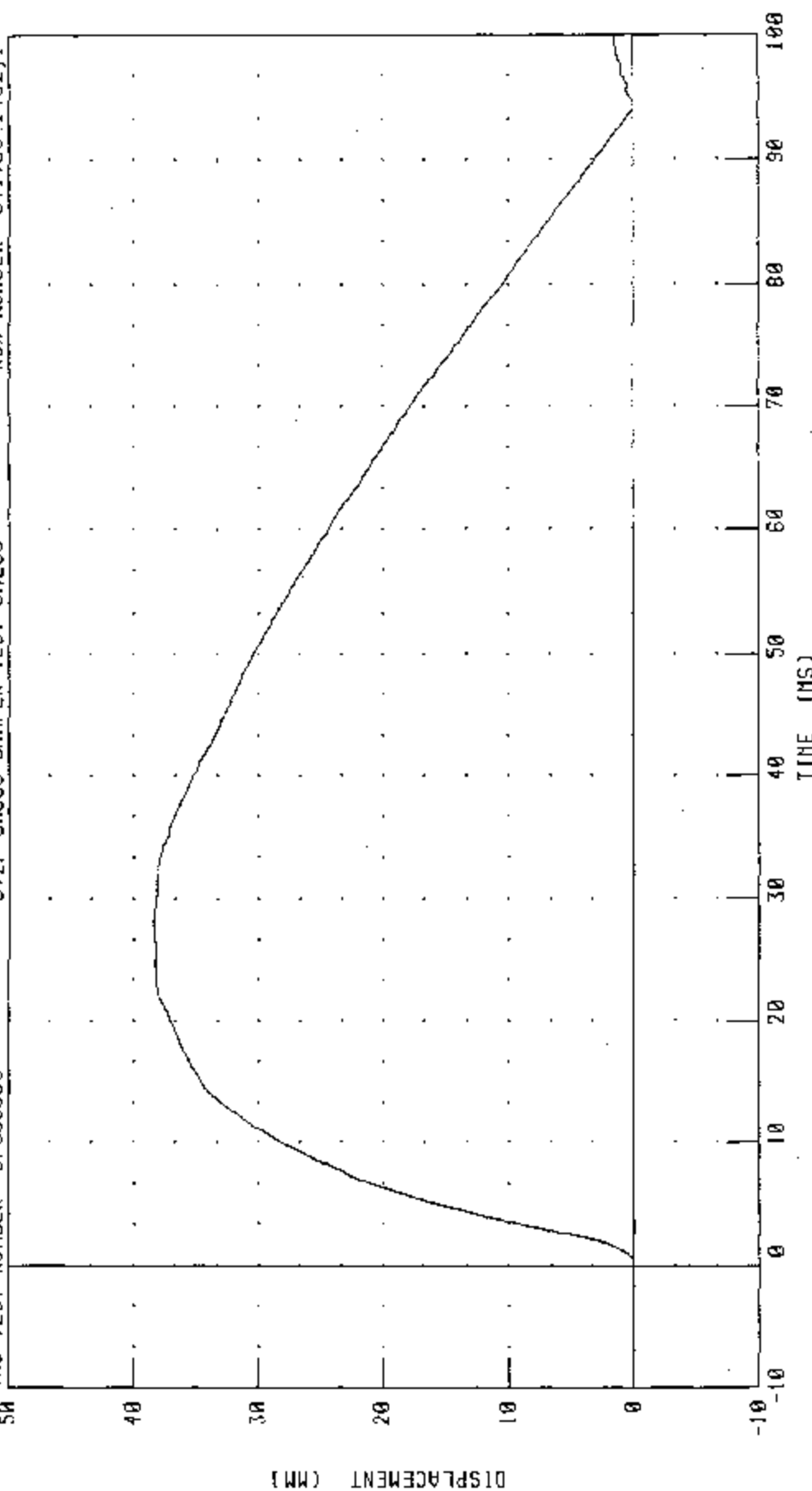
PART 572-F S.I.O THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06508C

572F 5N065 DAMPER TEST CAL08

RUN NUMBER: 041703 1402.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA 38.39 MM @ 27.84 MS; -0.02 MM @ 94.40 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 25-Apr-03

TRC, INC.

TEST NO: 065C09TF1

572B SN 065 TORSO FLEX CAL 09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.1 °C
RELATIVE HUMIDITY	10 – 70 %	25 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	124.6 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	164.6 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	218 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	9 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

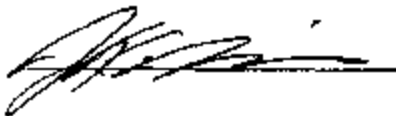
HIH SID Serial No. 065 Calibration No. 09 - 1

Test Date 04/25/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	25 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.3 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



04.25.2003 10:38:12 97

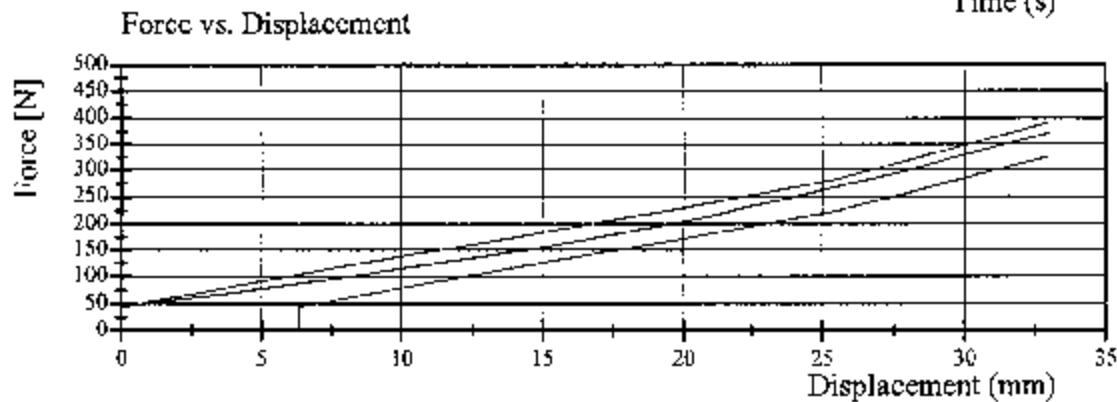
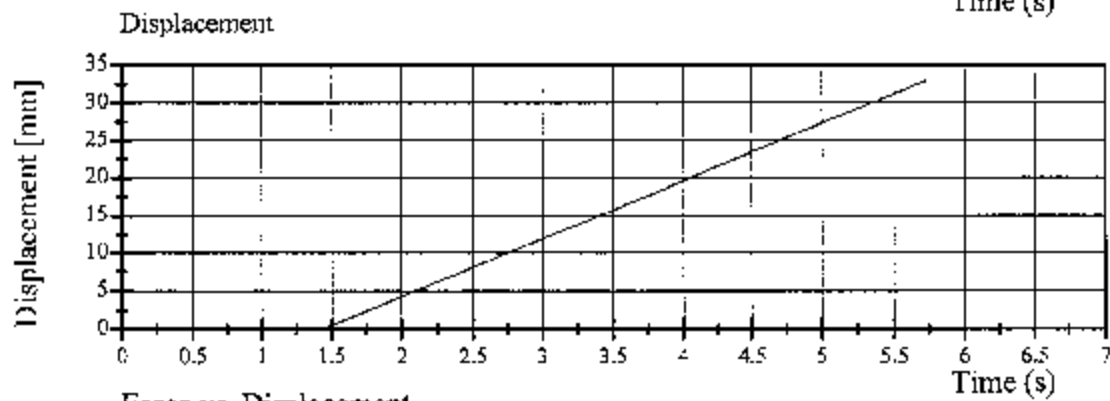
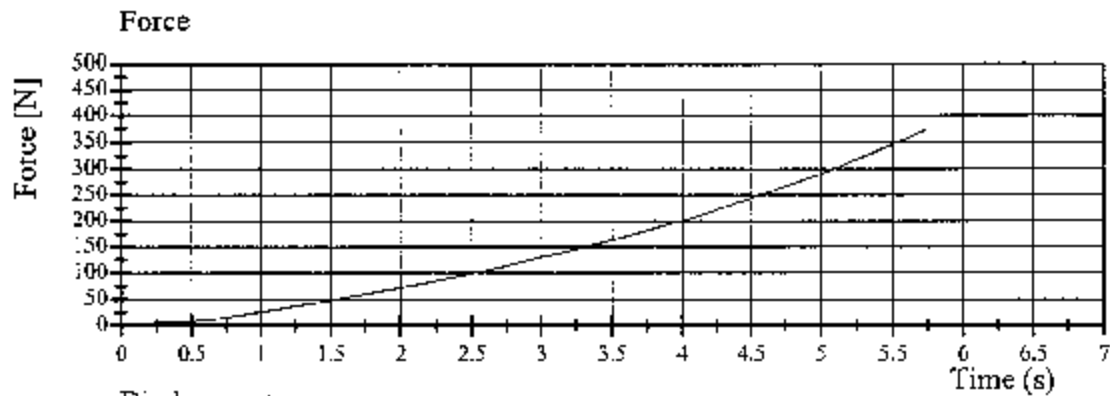


Transportation Research Center Inc.

572B Abdomen Compression Test

HIH SID Serial No. 065 Calibration No. 09 - 1

Test Date 04/25/2003



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

25-APR-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06509

572F SN065 LEFT PELVIS CAL09

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.26 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	50.9 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 042503.0934;1

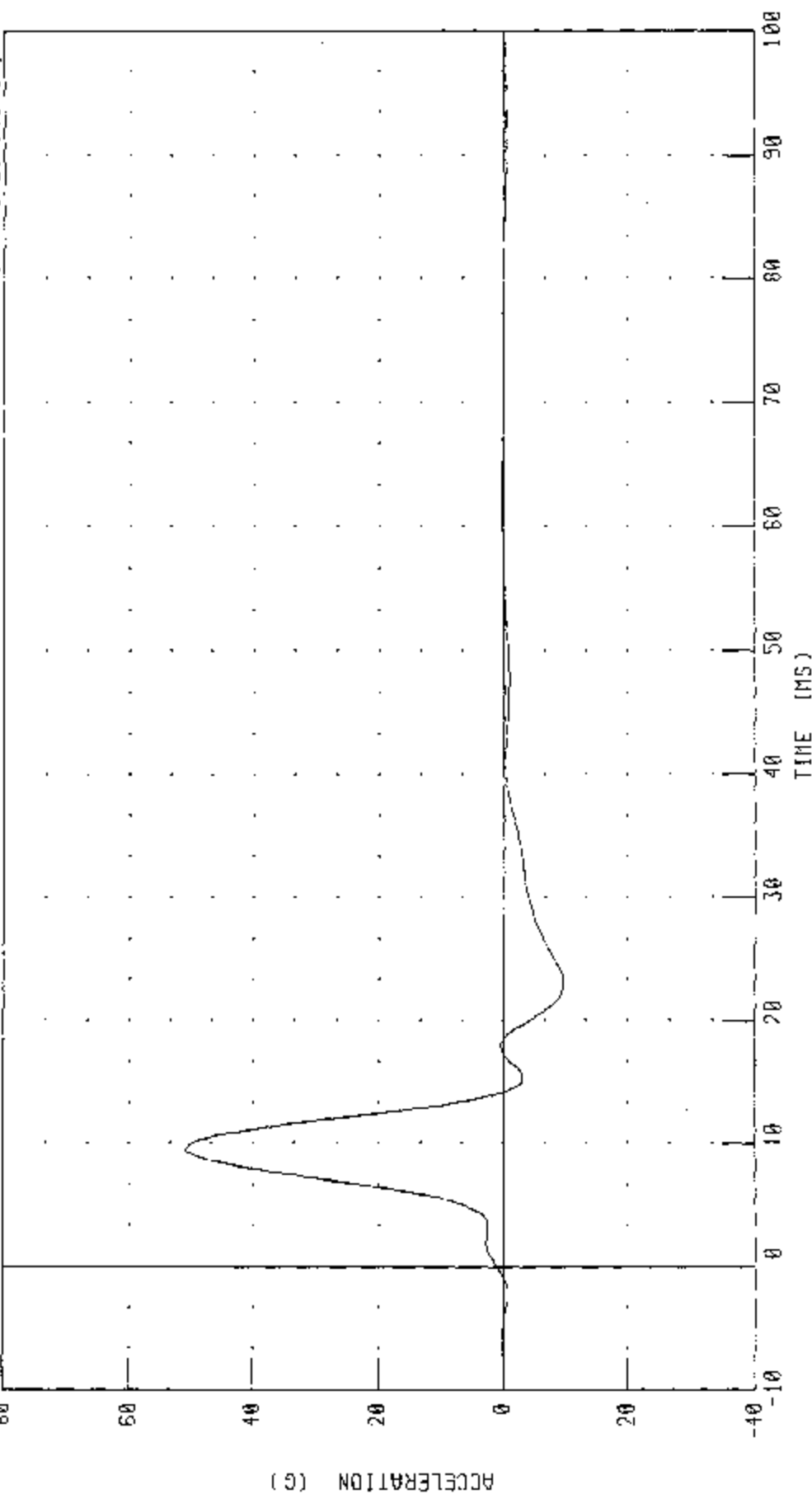
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06509

572F S0865 LEFT PELVIS CAL09

RUN NUMBER: 042503.0934.1



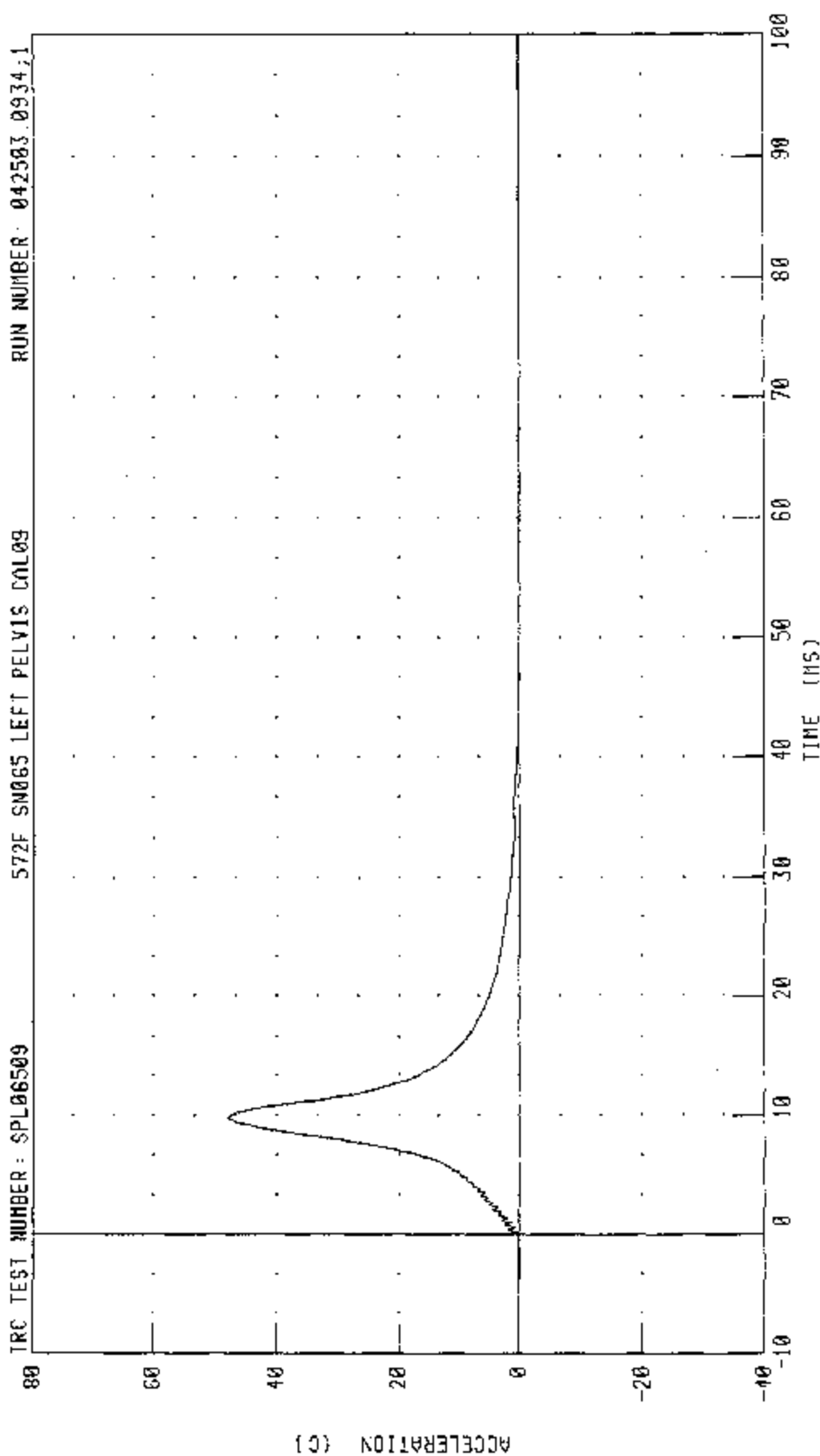
CHANNEL: PEVYG

FILTER: FIR 100

TIME (MS)

PEAK DATA: 50 85 0 0 9 37 MS; -9 77 0 0 23 13 MS

PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)
 PENDULUM DECELERATION



CHANNEL: PENXC FILTER: CH CLASS 1000

PEAK DATA: 47.35 G @ 9.84 MS, -0.28 G @ 61.52 MS

Calibration Test Results

Post-Test

SID: 028

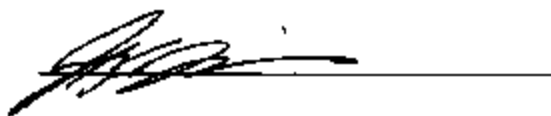
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 028 Calibration No. 06

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	504 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	230 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	512 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Top Rib Width From CVL	RW-1	165.1 - 180.3 mm	169 mm	Yes
Bottom Rib Width From CVL	RW-2	165.1 - 180.3 mm	168 mm	Yes
Difference Between Top & Bottom Rib Width from CVL		\leq 2.5 mm	1.0 mm	Yes

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL HEAD DROP TEST

HYBRIDIII SID DUMMY

01-MAY-03

LEFT SIDE CONFIGURATION

TRC INC.

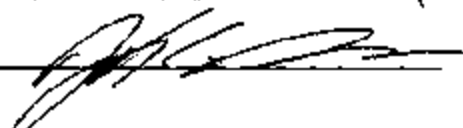
TEST NO. HDL02806

572M SID/HIII SN028 HEAD CAL06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.67 deg. C
RELATIVE HUMIDITY	10 - 70 %	43.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	135.13 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	-6.54 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

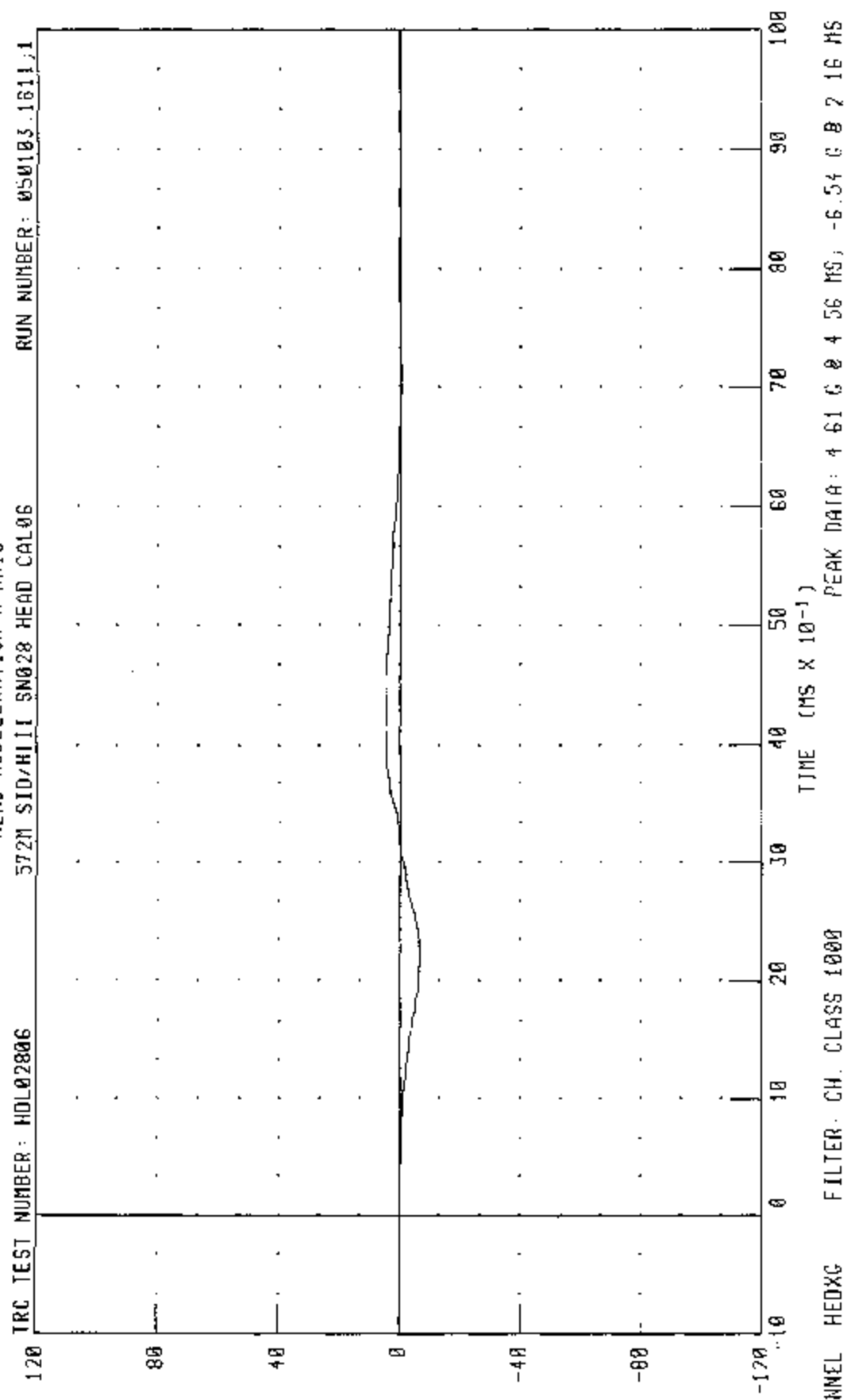
TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 050903.1449;1

572N SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP
 HEAD ACCELERATION X AXIS



ACCELERATION (G)

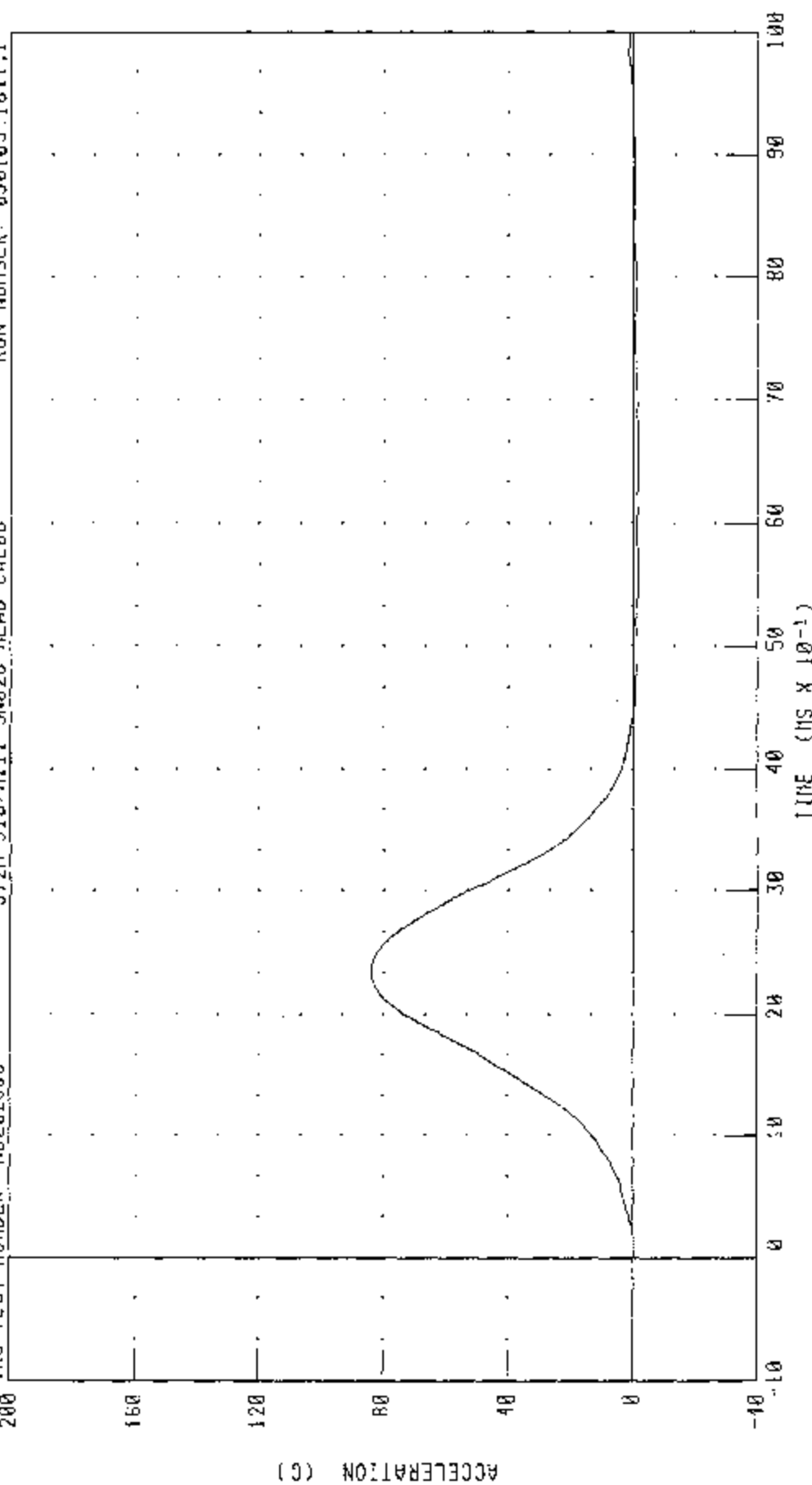
572M SID/HII; DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: HDL02806

572M SID/HII SN020 HEAD CAL06

RUN NUMBER: 050103.1611.1



CHANNEL: HEDYC FILTER: CII CLASS: 1000

PEAK DATA: 84 00 0 0 2 32 1'S; -1 00 0 0 5.52 MS

572M SID/HIII DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEND ACCELERATION Z AXIS

RUN NUMBER 050103.1611,1

572M SID/HIII SN028 HEAD CAL08

TRC TEST NUMBER: HOL02806

200

160

120

80

40

0

-40

ACCELERATION (G)

TIME (MS X 10⁻¹)

CHANNEL MEDZG FILTER: C11. CLASS 1000

PEAK DATA: 105 74 G @ 240 MS, -0.09 C @ 0.00 MS

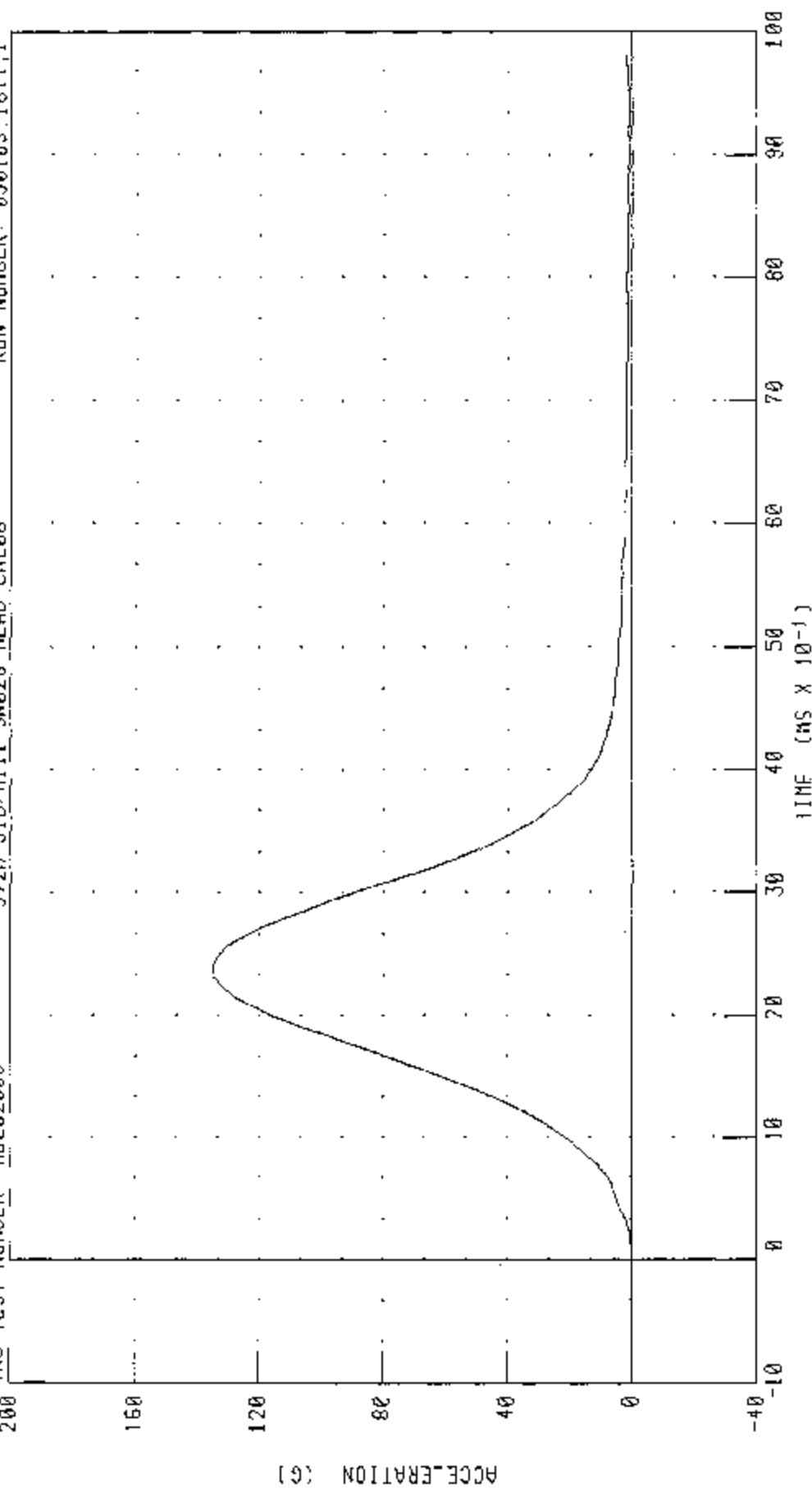
572M SID/HILL DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULTANT ACCELERATION

TRC TEST NUMBER: IDL02806

572M SID/HILL SN028 HEAD CAL06

RUN NUMBER: 050103.1611.1



CHANNEL: HEADG

FILTER: CH. CLASS 1000

TIME (MS X 10⁻¹)

PLAK DATA: 135.13 G @ 2.40 MS, 0.03 G @ -0.56 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL NECK TEST

HYBRIDIII SID DUMMY

01-MAY-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NFLO2806

572M H3/SID SN028 NECK CAL06

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.67 deg. C
RELATIVE HUMIDITY		10 - 70 %	43.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.35 M/S
	20 MS	4.12 - 5.10 M/S	4.80 M/S
	30 MS	5.73 - 7.01 M/S	6.85 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.11- 7.19 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	71.81 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	58.88 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73 - 88 NM	79.19 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	56.32 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	8.88 MS

TEST MEETS SPECIFICATIONS

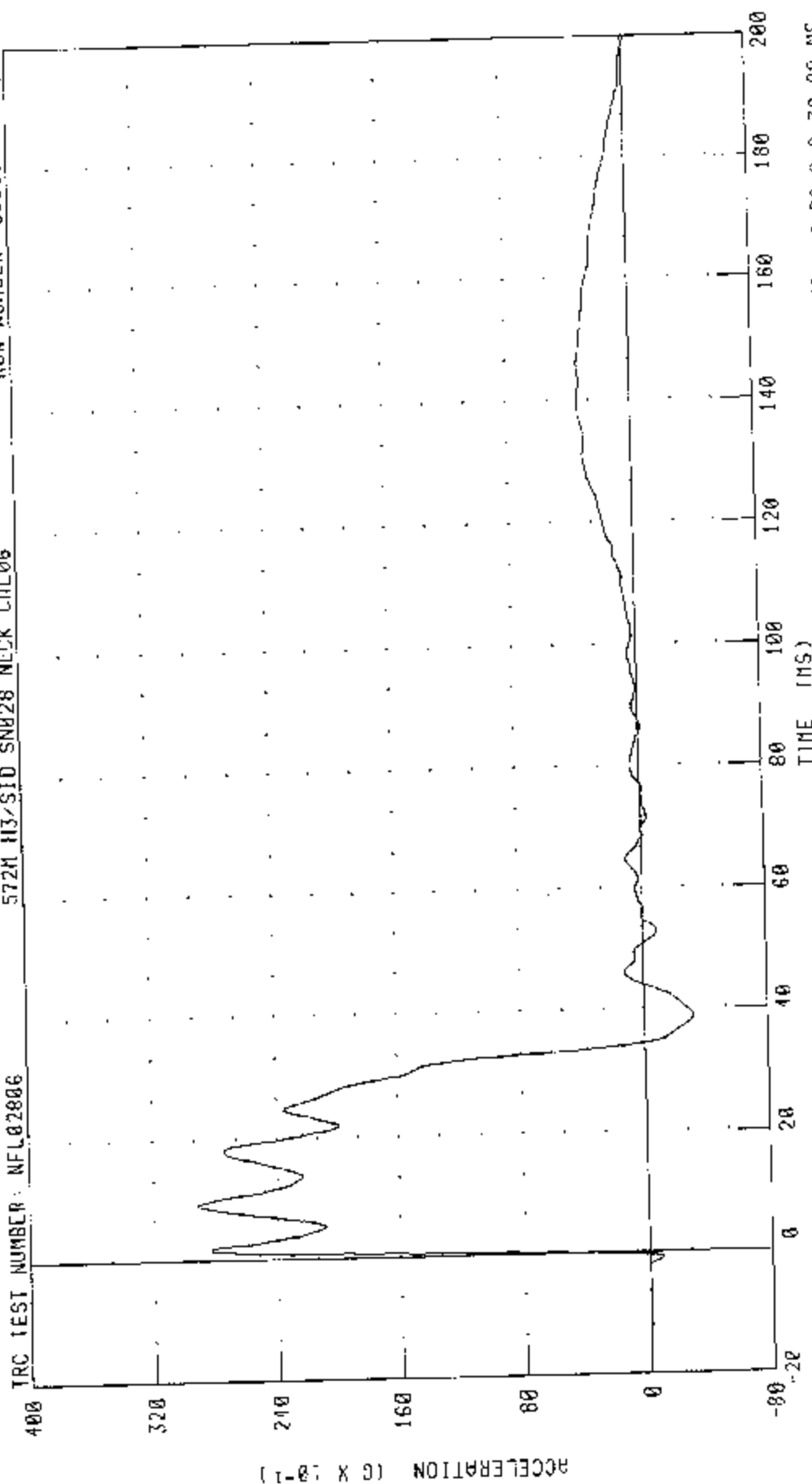
TECHNICIAN 

RUN NUMBER: 050903.1452;1

572M I13/SID DUNKY CALIBRATION -- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

TRC TEST NUMBER: NFL02886 572M I13/SID SN028 NECK CAL08 RUN NUMBER 050103.1845.1



PEAK DATA: 29 16 G 9.20 MS, -3.22 G 38 88 MS

CHANNEL: PENXC FILTER: CH. CLASS 100

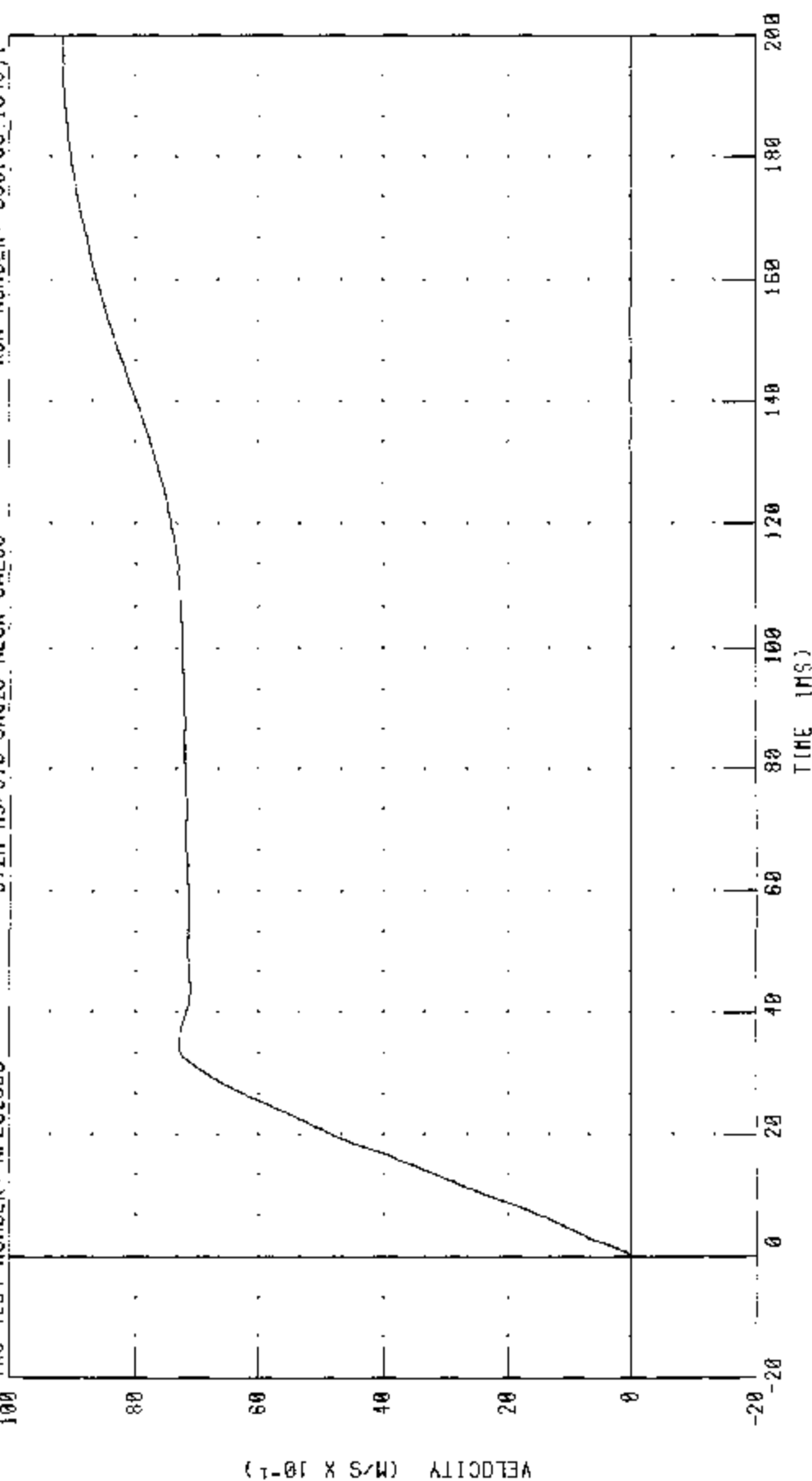
572M H3/S1D DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

TRC TEST NUMBER: NFL02806

572M H3/S1D SN028 NECK CAL06

RUN NUMBER: 050103.1016.1



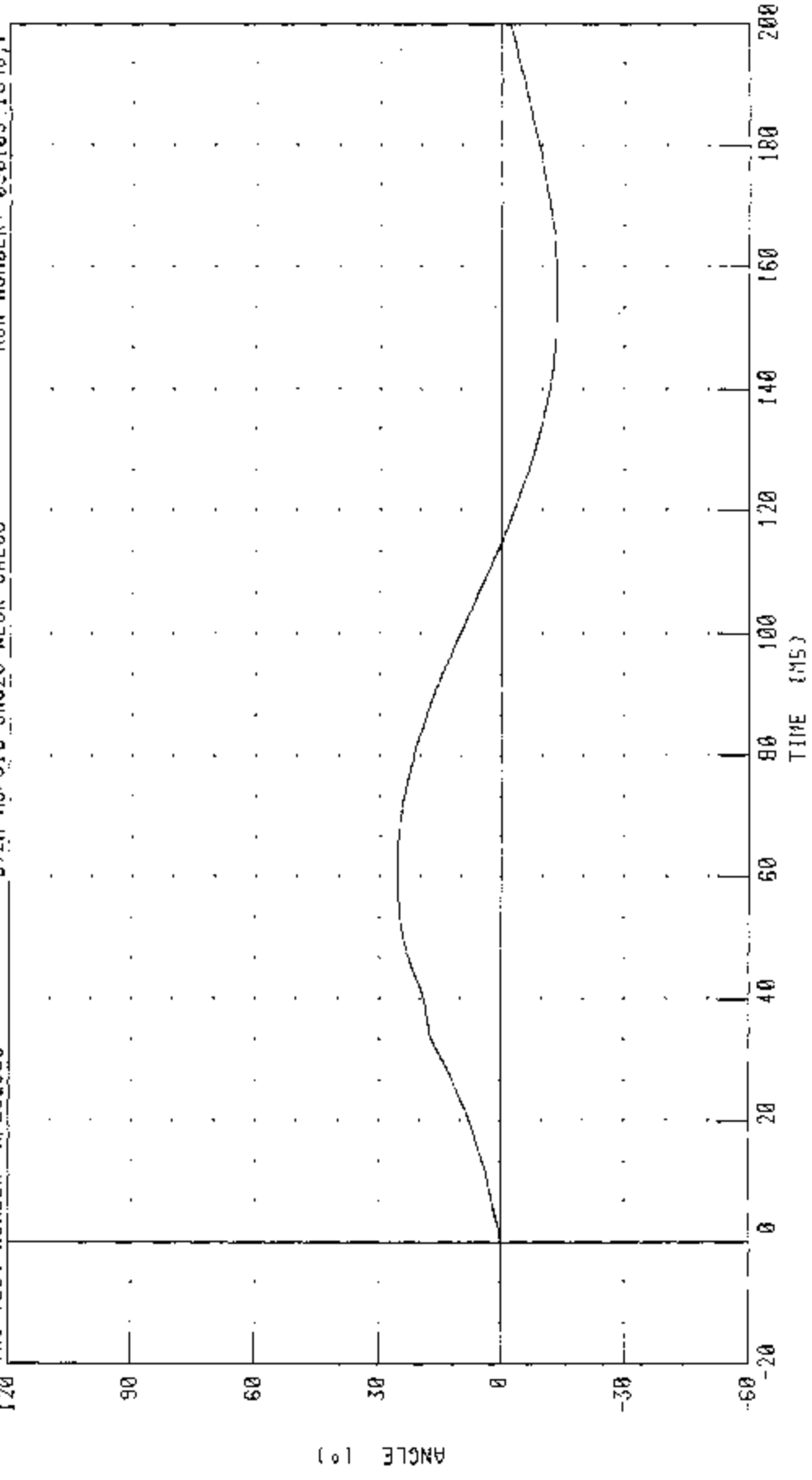
CHANNEL: PENXVI FILTER: CH. CLASS 180

PEAK DATA: 9.13 M/S @ 197.92 MS; -0.01 M/S @ -0.10 MS

572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: NFL02806 572M H3/S10 SN028 NECK CAL06 RUN NUMBER: 050103 1846.1



CHANNEL: RF10 FILTER: CH. CLASS 60 TIME (MS) PEAK DATA: 25.57 @ 63.44 MS; 13.75 @ 156.00 MS

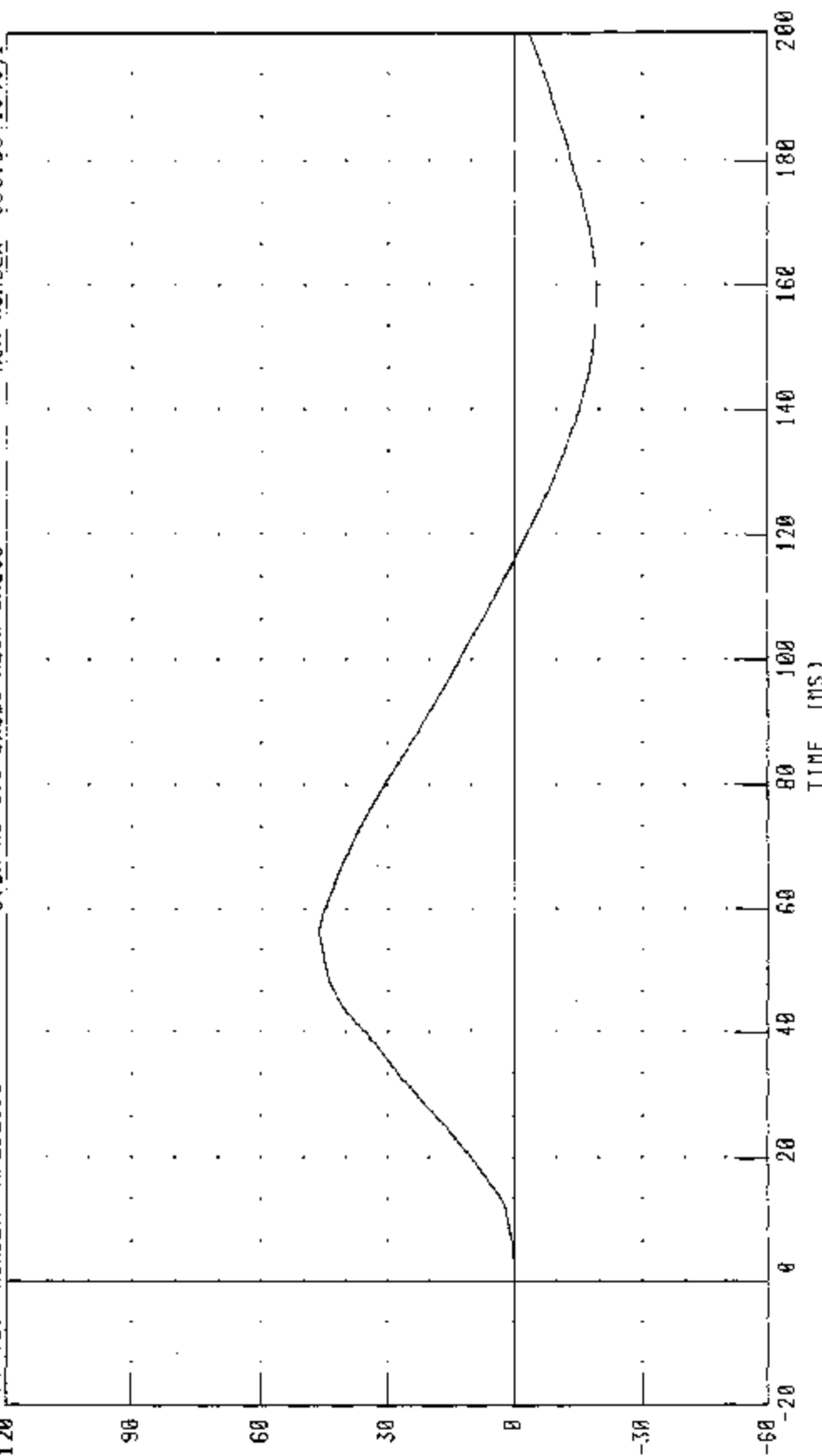
572H H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL02806

572H H3/SID SN028 NECK CAL06

RUN NUMBER: 050103 1016J1



PEAK DATA: 46.34 ° @ 56.32 MS; -19.31 ° @ 158.64 MS

CHANNEL: THETA FILTER: CH. CLASS 60

ANGLE (°)

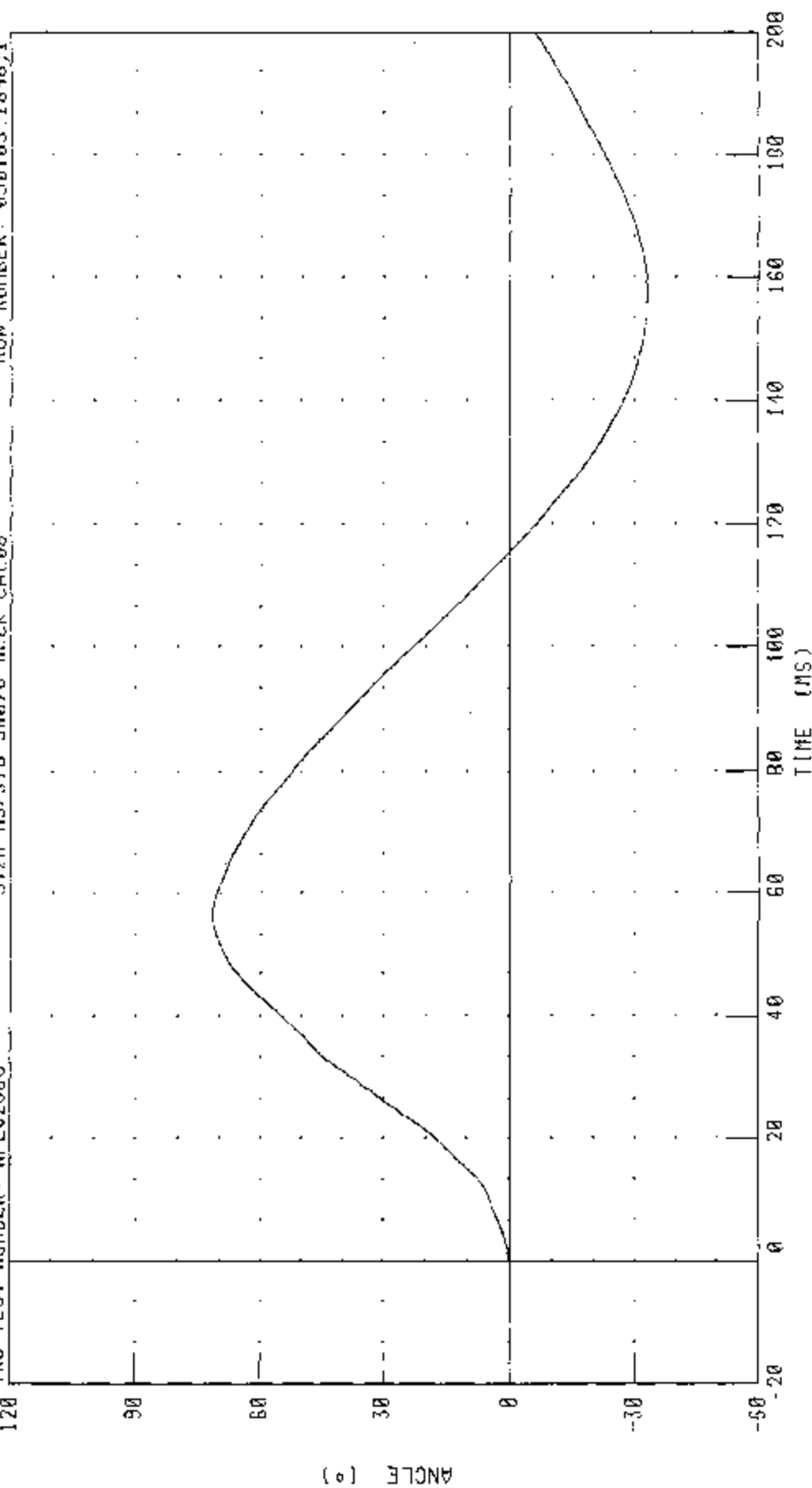
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

TRC TEST NUMBER: NFL02806

572M H3/SID SN078 NECK CAL08

RUN NUMBER: 050103.1846.1



PEAK DATA: 71.81 ° @ 56.56 MS, -33.03 ° @ 157.52 MS

CHANNEL: TOTON FILTER: CH. CLASS: 60

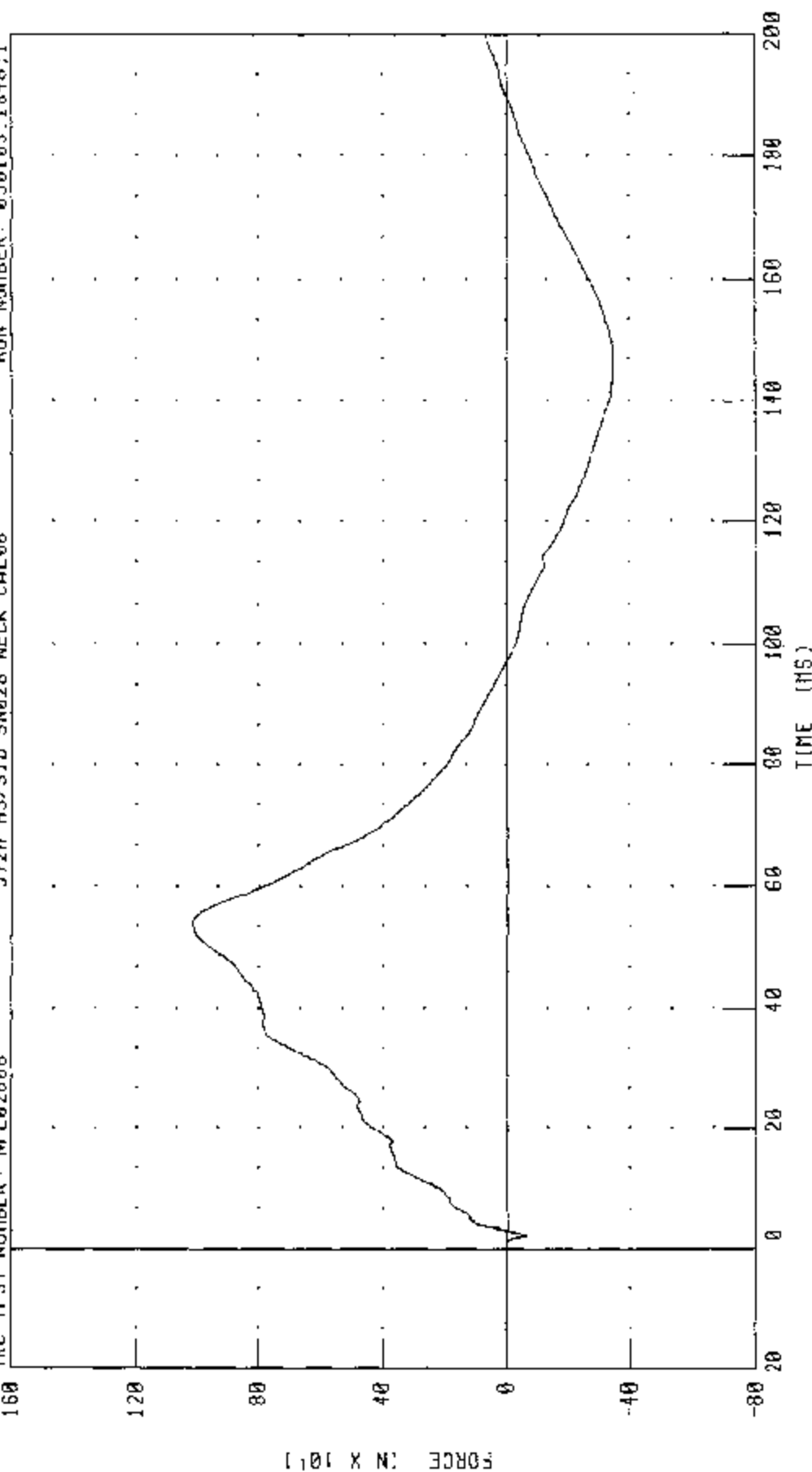
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

TRC TEST NUMBER: NFL02806

572M H3/SID SN028 NECK CAL06

RUN NUMBER: 050103.1846.1



TIME (MS)

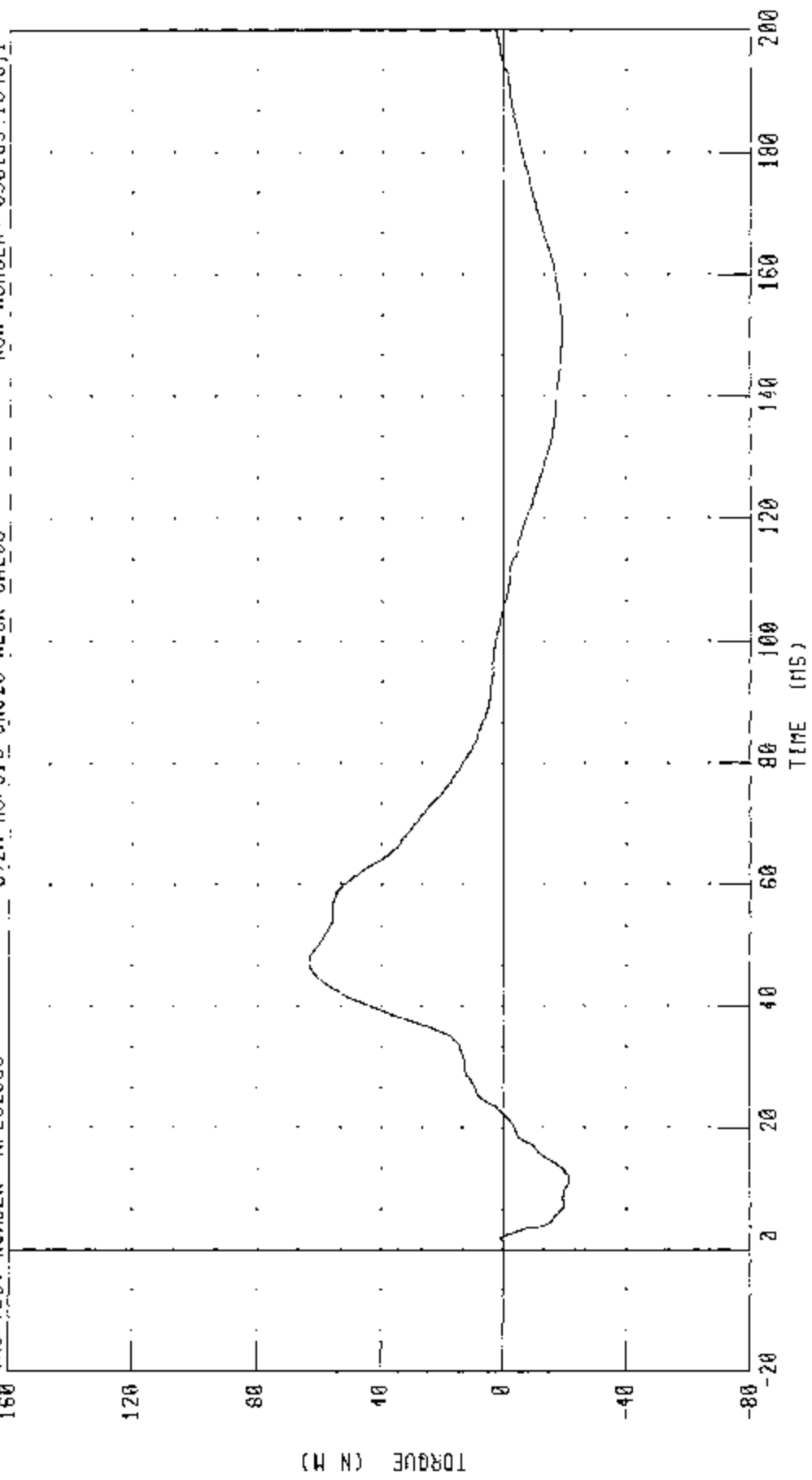
CHANNEL NFKYF FILTER CH CLASS 1000

PEAK DATA: 1015 53 N 0 53 52 MS, -350.28 N 0 145 28 MS

572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

IRC TEST NUMBER: NFL02806 572M H3/S10 SN028 NECK CAL06 RUN NUMBER: 050103.1846;1



CHANNEL: NEKXN FILTER: CH. CLASS 600 PEAK DATA: 63.35 N·m @ 47.36 ms; -21.84 N·m @ 114.4 ms

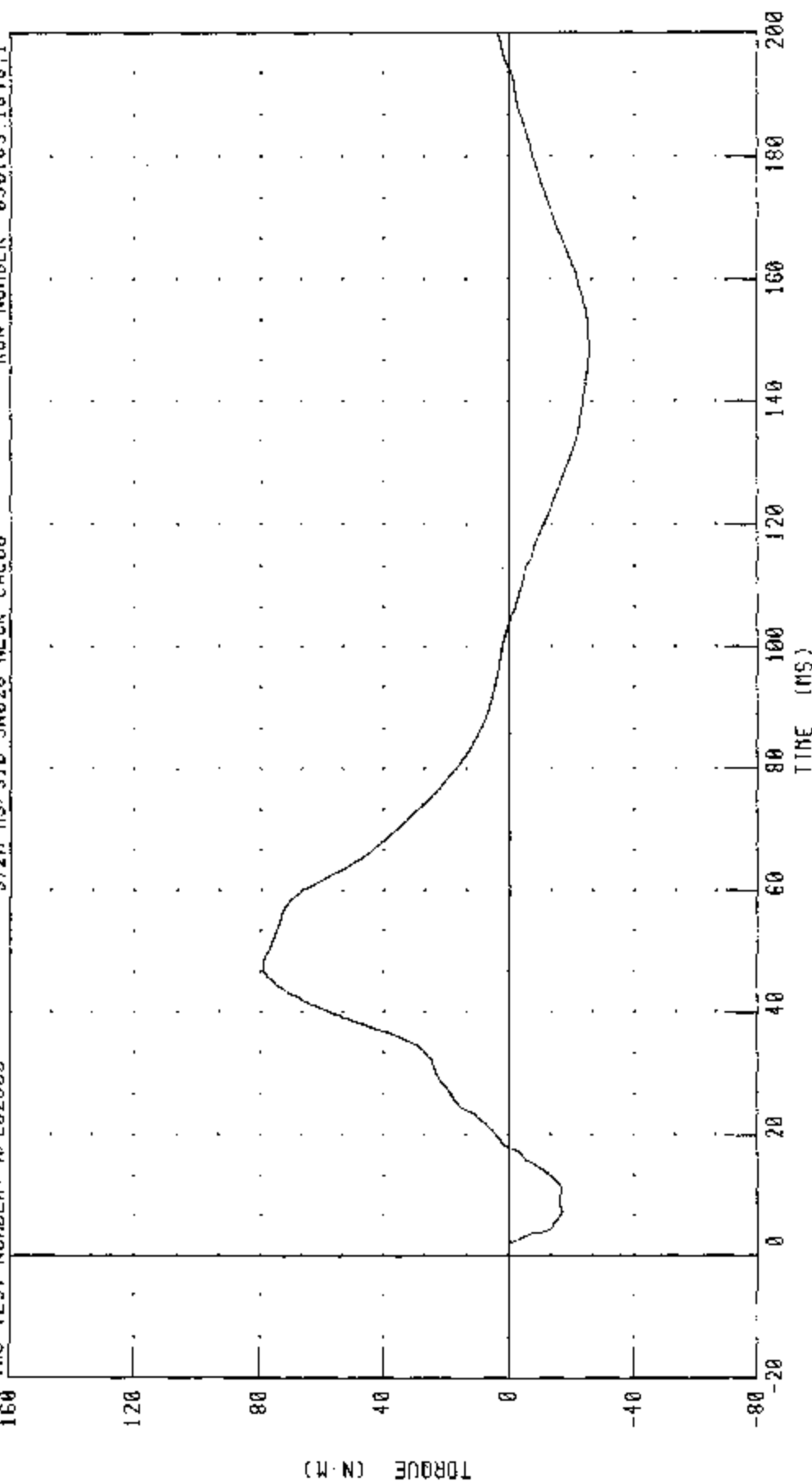
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL02806

572M H3/SID SN028 NECK CAL06

RUN NUMBER: 050103.1846.1



CHANNEL: NEKOM FILTER: CH. CLASS 600

PEAK DATA: 79.19 N·m @ 47.68 ms; -25.44 N·m @ 149.52 ms

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

01-MAY-03

TRC INC.

572F SN028 DAMPER TEST CAL06

TEST NUMBERS: DP02806A, DP02806B, DP02806C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	43.0 %
VELOCITY	FORCE	667 - 925 N	821 N
2.71 M/S	DISPLACEMENT	29.7 - 34.5 MM	30.9 MM
VELOCITY	FORCE	1733 - 2100 N	1844 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	34.4 MM
VELOCITY	FORCE	3703 - 4402 N	3778 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	36.6 MM

DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 050903.1436;1

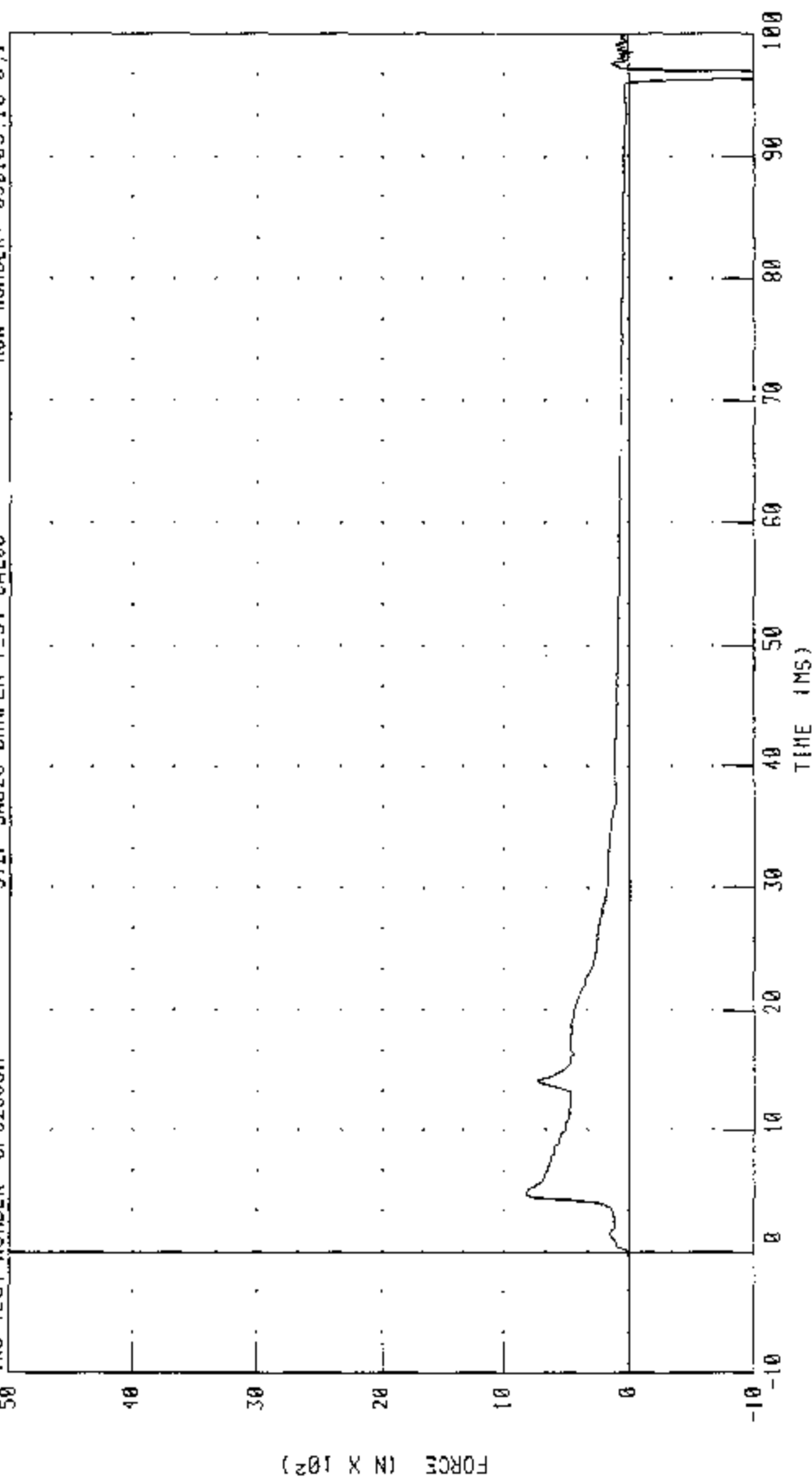
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: 0P02806A

572F SN028 DAMPER TEST CAL06

RUN NUMBER: 050103.1840.1



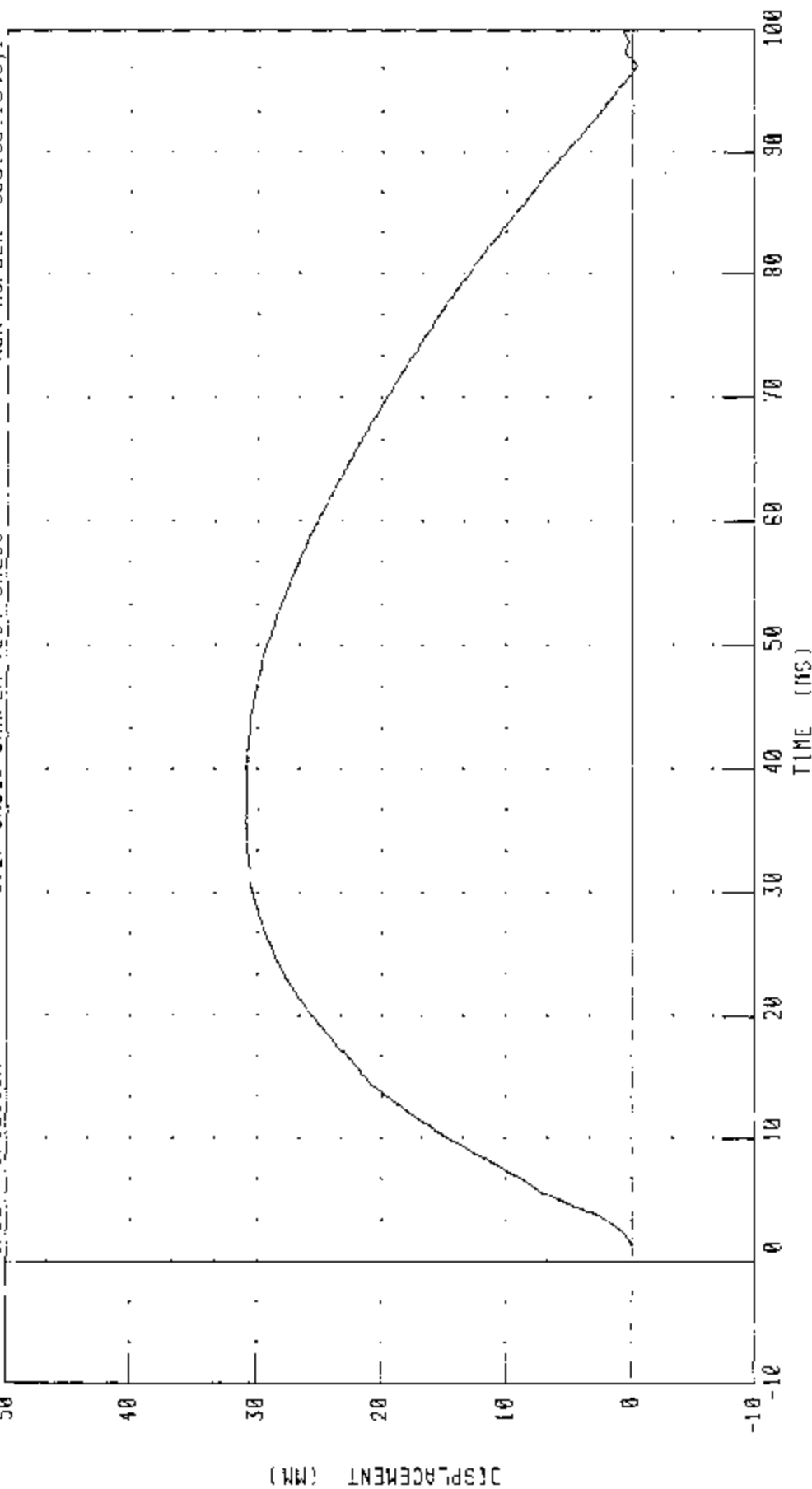
PEAK DATA: 821.38 N @ 4.80 MS, -1415.84 N @ 96.48 MS

CHANNEL: DAMP FILTER: CH. CLASS 1000

PORT 572-F S.I.0 THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP02B06A 572F SW02B UNIPER TEST CAL06 RUN NUMBER: 050103.1840.1



PEAK DATA: 30.93 MM @ 35.04 MS, 0.34 MM @ 96.88 MS

CHANNEL: CSTVD FILTER: CH. CLASS 1000

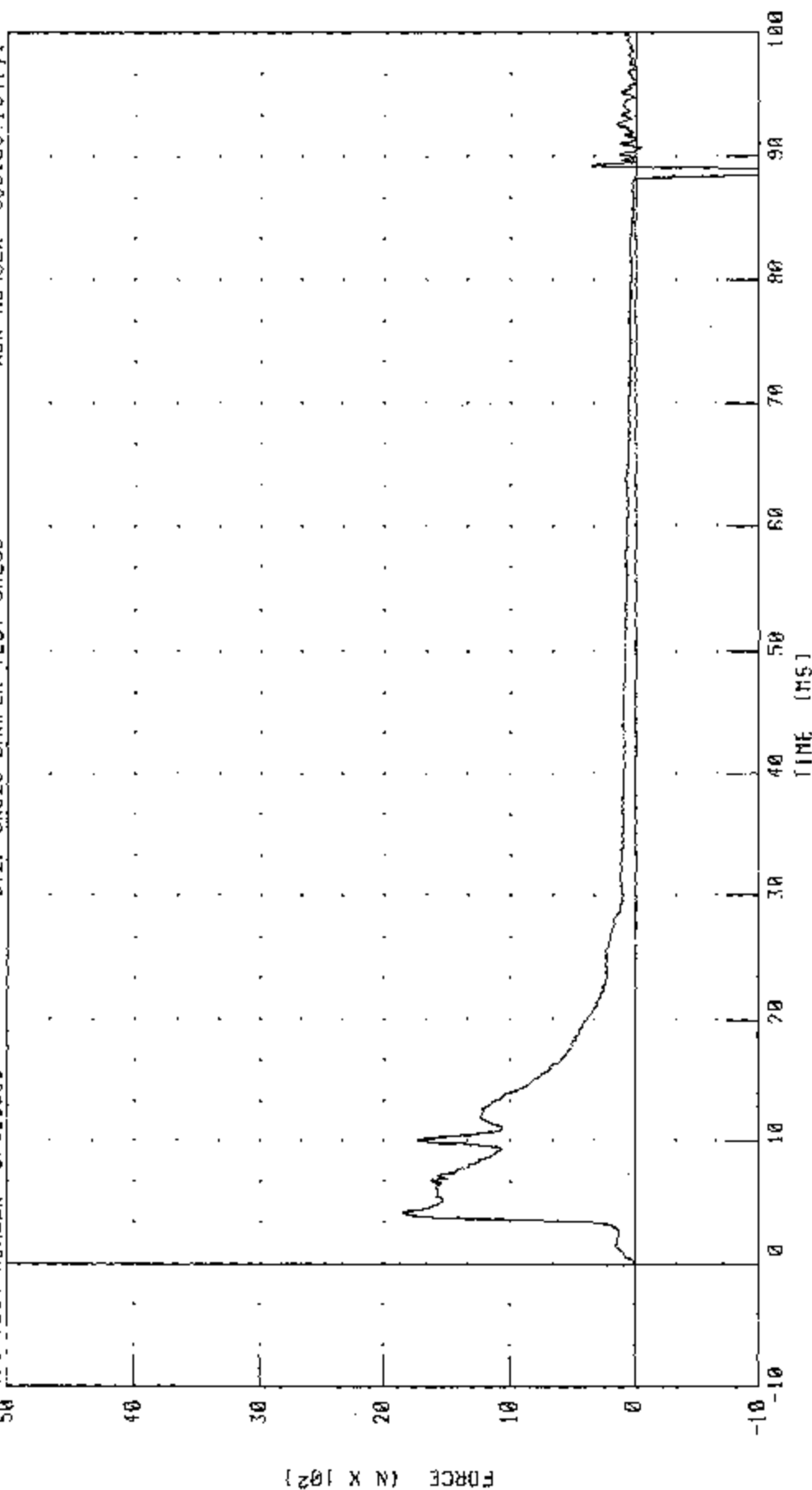
PART 572-F 5 I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

572F SN020 DAMPER TEST CAL08

TAC TEST NUMBER: DP028068

RUN NUMBER: 050103.1841.1



CHANNEL: DAMPF

FILIER: CH. CLASS 1000

PEAK DATA 1843.85 N @ 4.16 MS; -2435.87 N @ 88.80 MS

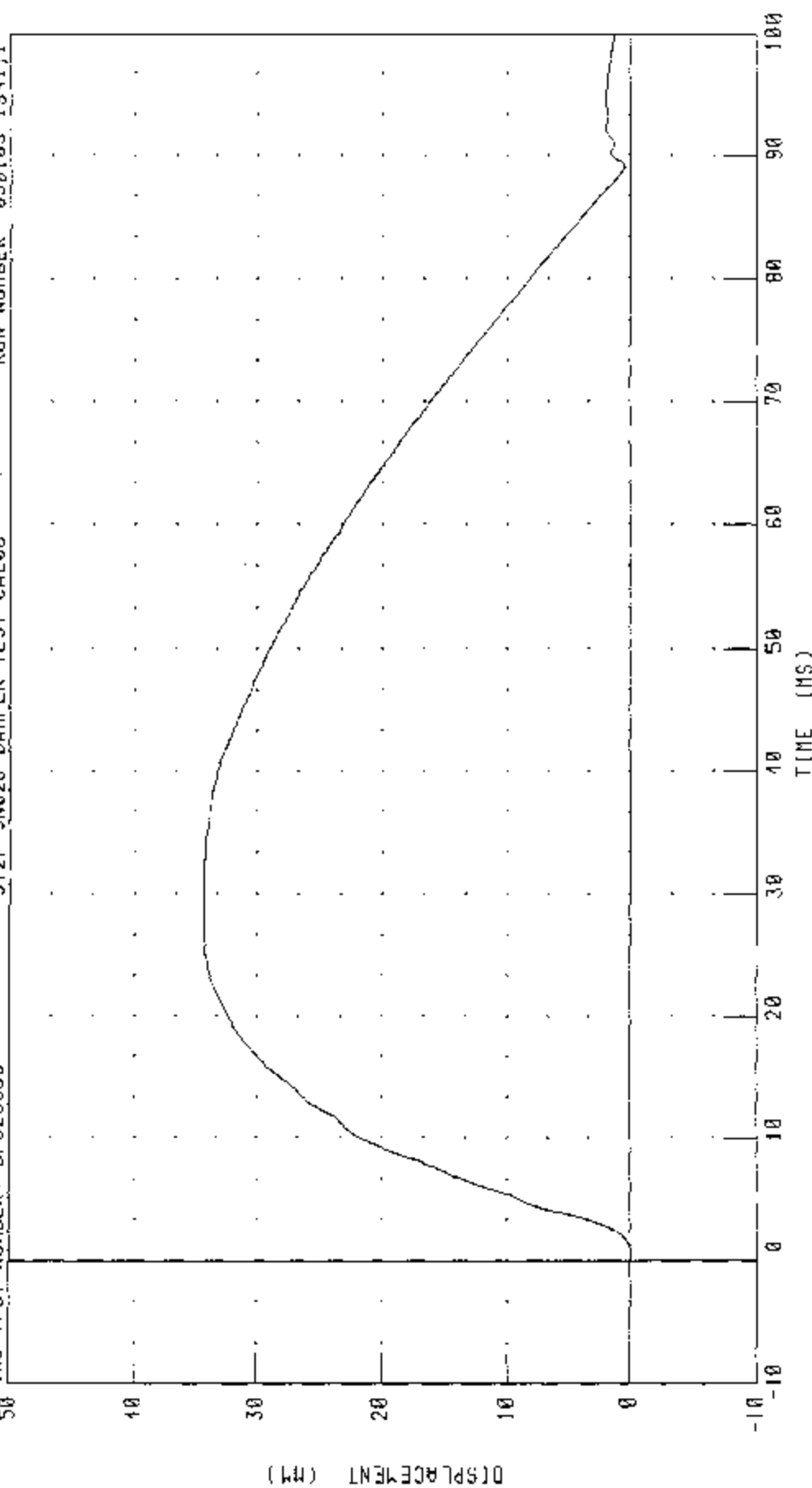
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP02806B

572F SN028 DAMPER TEST CAL00

RUN NUMBER: 050103 1941,1



PEAK DATA: 34.38 MM @ 27.52 MS; -0.01 MM @ -7.76 MS

CHANNEL: CS1Y0 FILTER: CH. CLASS 1000

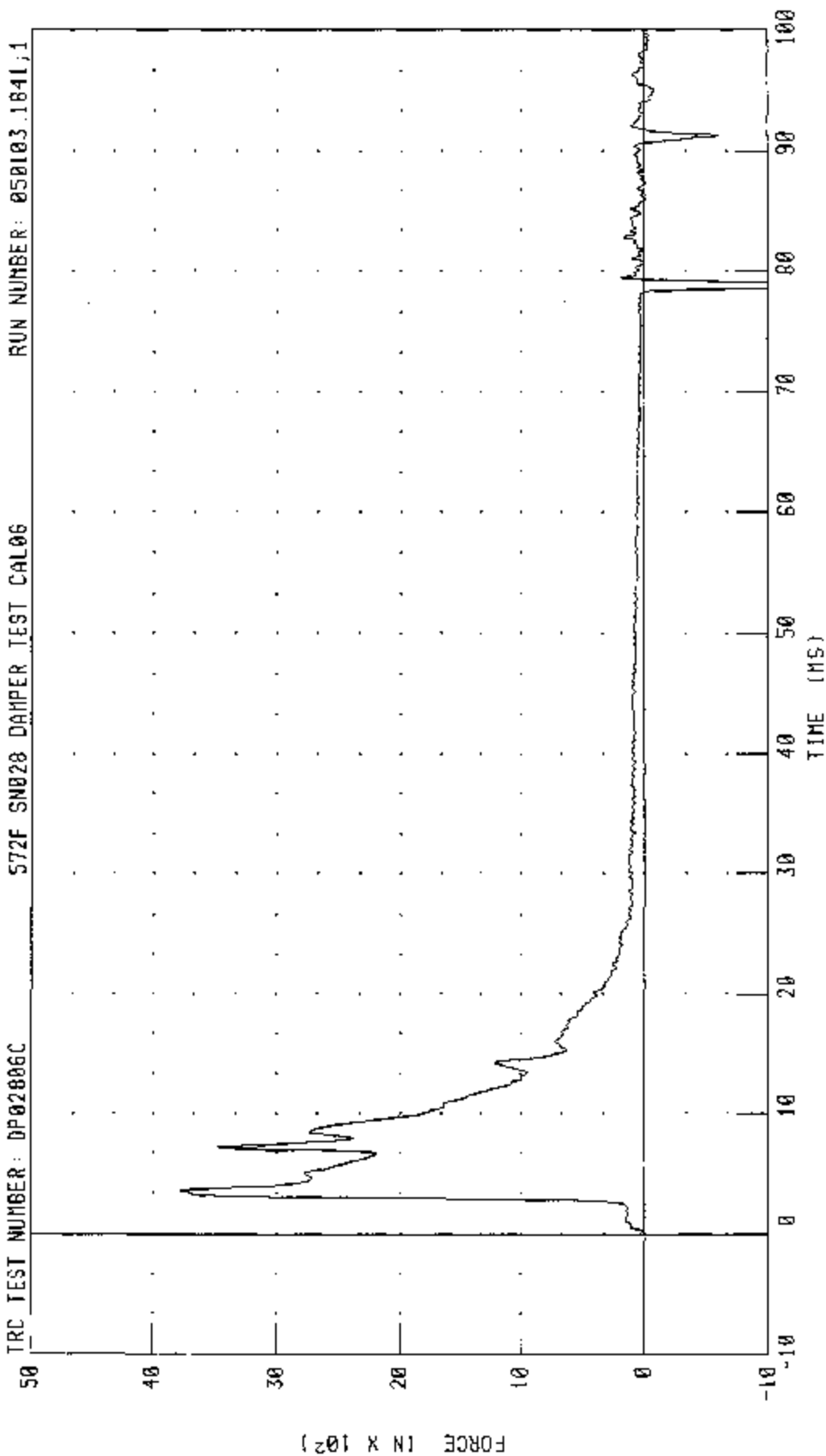
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP02886C

572F SN028 DAMPER TEST CAL06

RUN NUMBER: 050103.1841;1



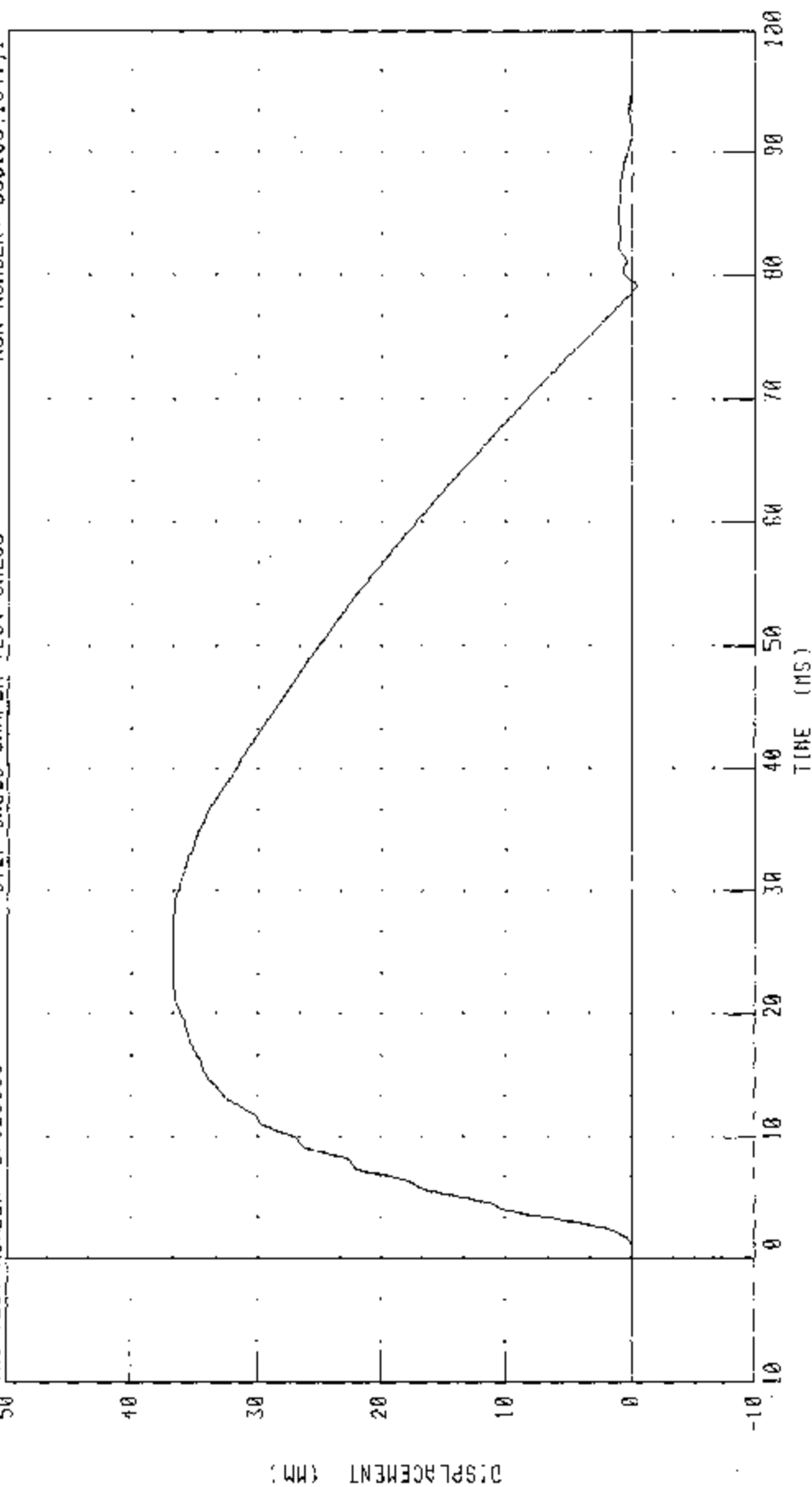
CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 3777 88 N @ 3.52 MS; -2281 23 N @ 78.88 MS

PART 572-F S.I.U THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER DP02806C 572F SN028 DAMPER TEST CAL06 RUN NUMBER 050103.1841.1



PEAK DATA 36.64 MM @ 24.88 MS; -0.35 MM @ 79.12 MS

CHANNEL: CSIYD FILTER: CH. CLASS 1000

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

01-MAY-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL02806

572F SID SN028 L.THORAX CAL06

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	43.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	40.0 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	42.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	17.5 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 050903.1441;1

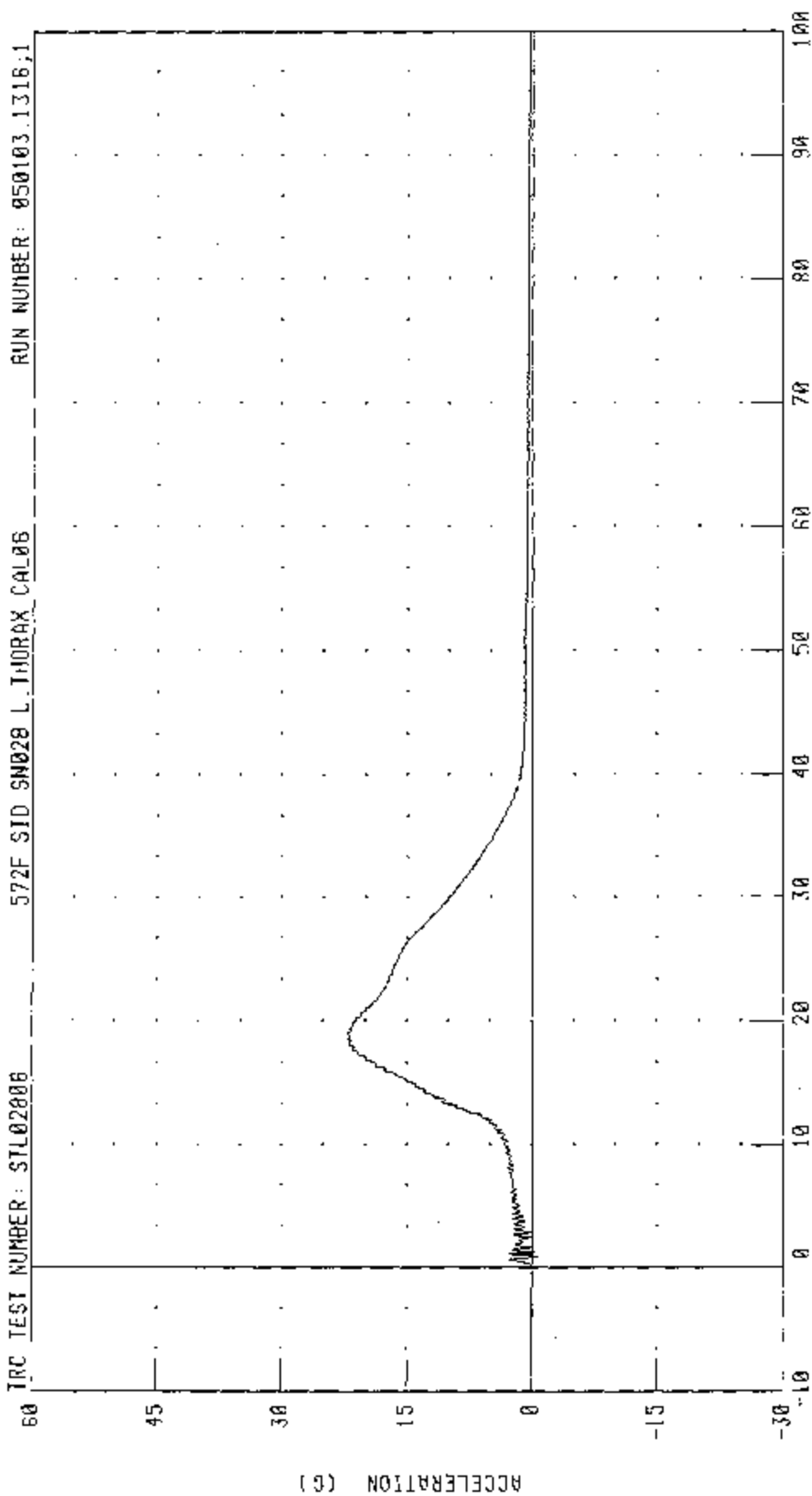
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL02006

572F SID SN028 L THORAX CAL06

RUN NUMBER: 050103.1316.1



TIME (MS)

PEAK DATA: 22 15 0 18.56 MS; -0.70 G 0 0 00 MS

CHANNEL: PENXC FILTER: CH CLASS 1000

ACCELERATION (G)

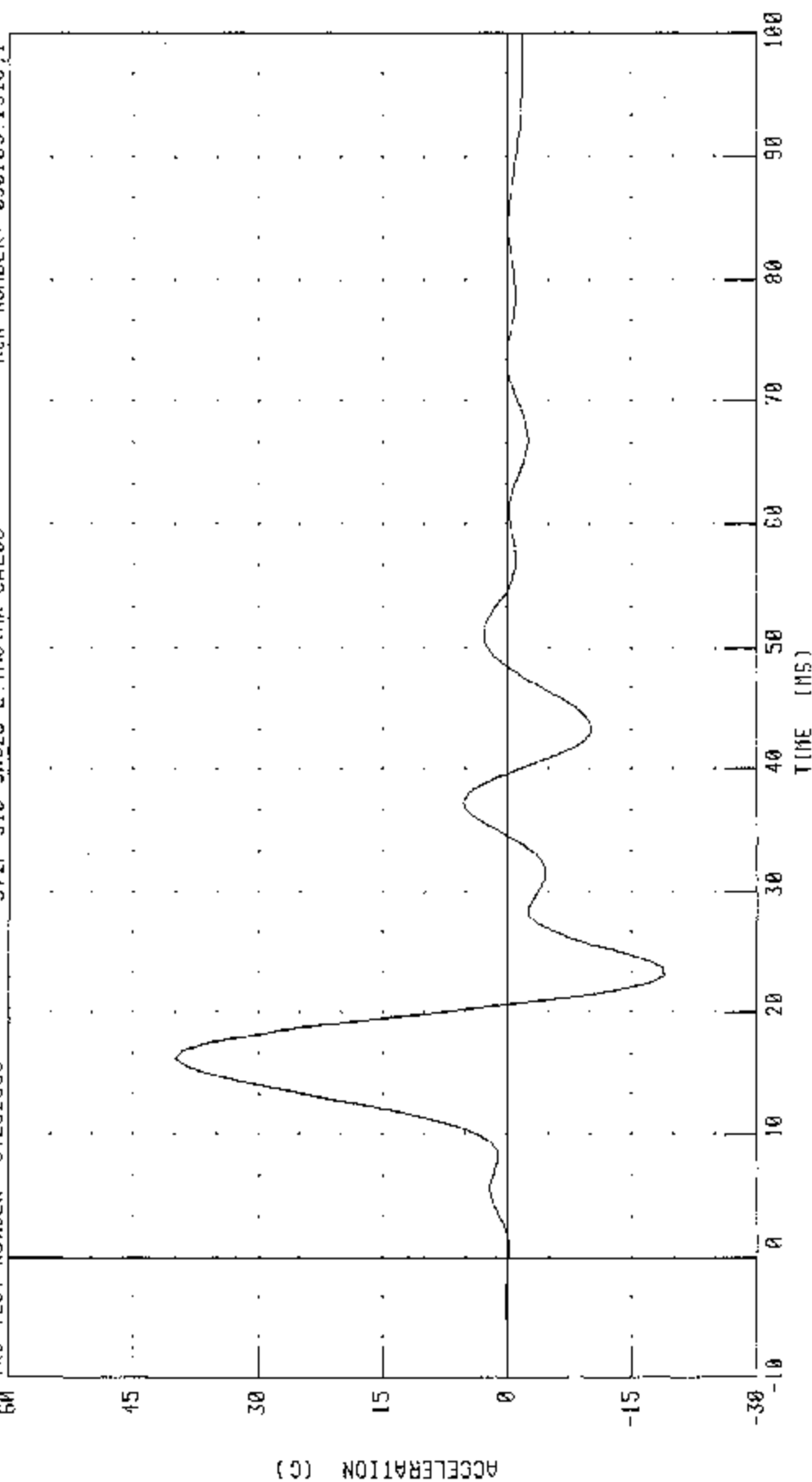
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL02806

572F SID SN028 L THORAX CAL06

RUN NUMBER: 050103.1316.1



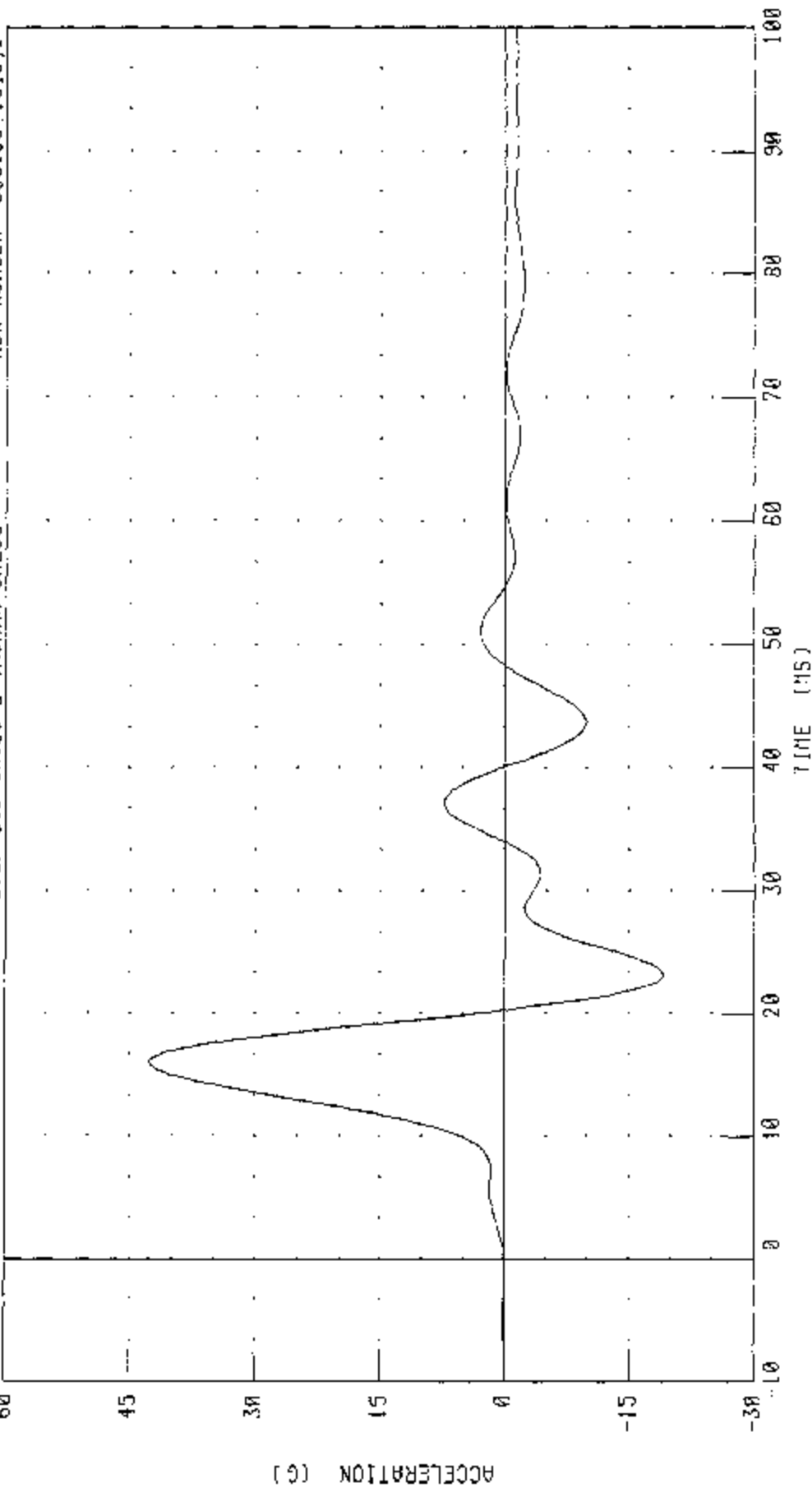
CHANNEL: LURYC FILTER: FIR 100

PEAK DATA: 39 99 9 9 16 25 MS; -19 01 0 0 23 13 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: 51L02808 572F SID SN028 L THORAX CAL06 RUN NUMBER: 050103.1316.1



PEAK DATA: 42 64 G @ 16.25 MS; -19 26 G @ 23.13 MS

CHANNEL LLRYC FILTER FIR 100

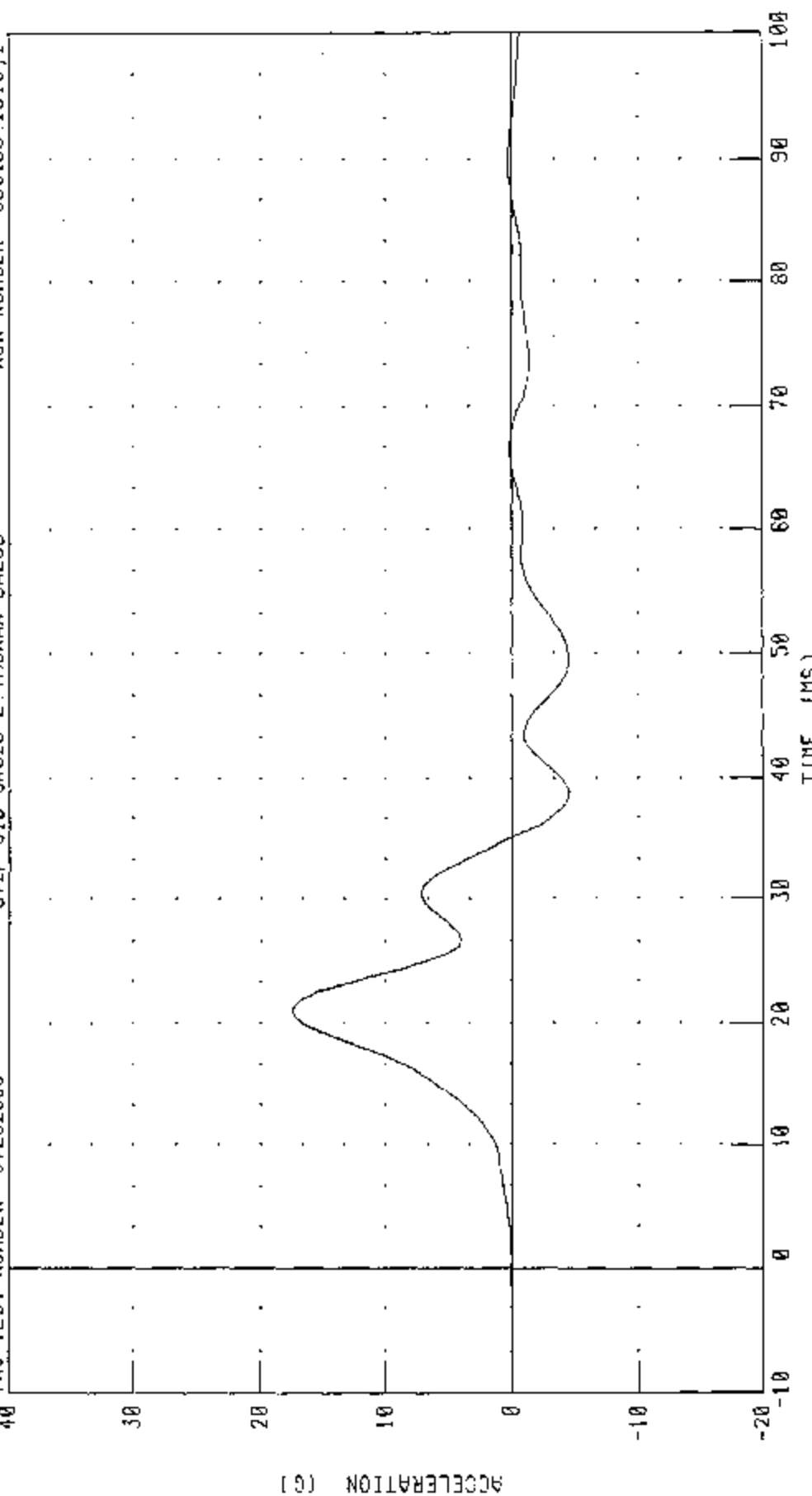
PART 572-F S I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: ST102886

572F SID SN028 L THORAX CAL06

RUN NUMBER: 050103.1316;1



CHANNEL: 112YG FILTER: FIR 100

PEAK DATA: 17.49 G @ 21.25 MS, -4.55 G @ 43.37 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 01-May-03

TRC, INC.

TEST NO: 028C06LF1

572B SN 028 TORSO FLEX CAL 06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	21.7 °C
RELATIVE HUMIDITY	10 – 70 %	43 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	129.0 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	218.0 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	8 "

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

572B Abdomen Compression Test

HIH SID Serial No. 028 Calibration No. 06 - 1

Test Date 05/01/2003

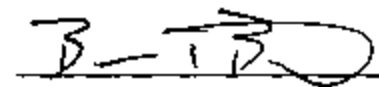
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.3 - 8.1 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



05.02.2003 11:02:52 5

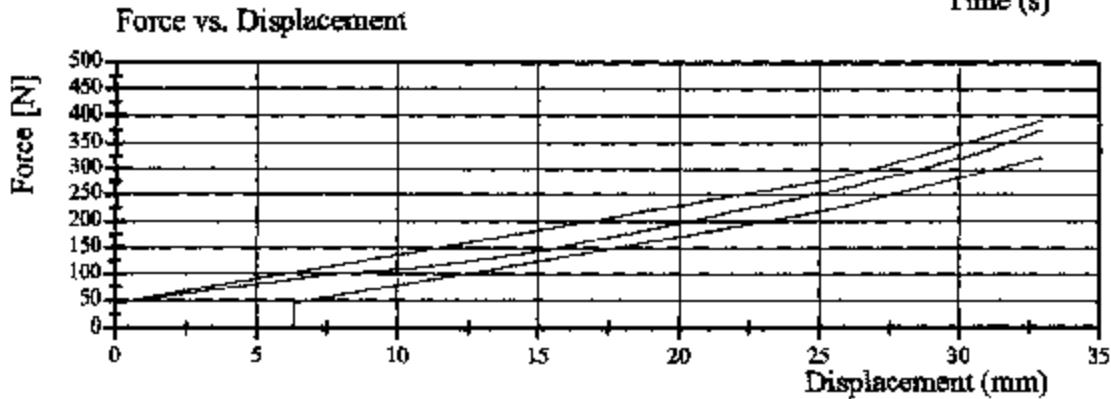
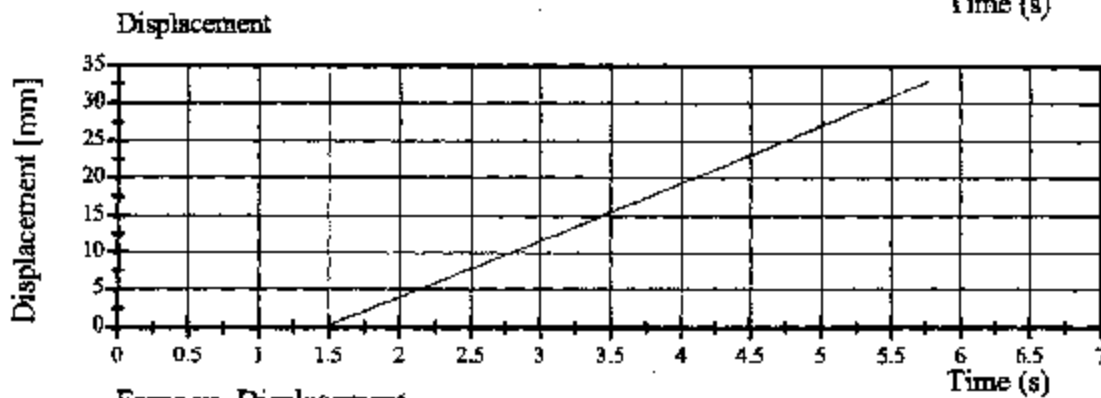
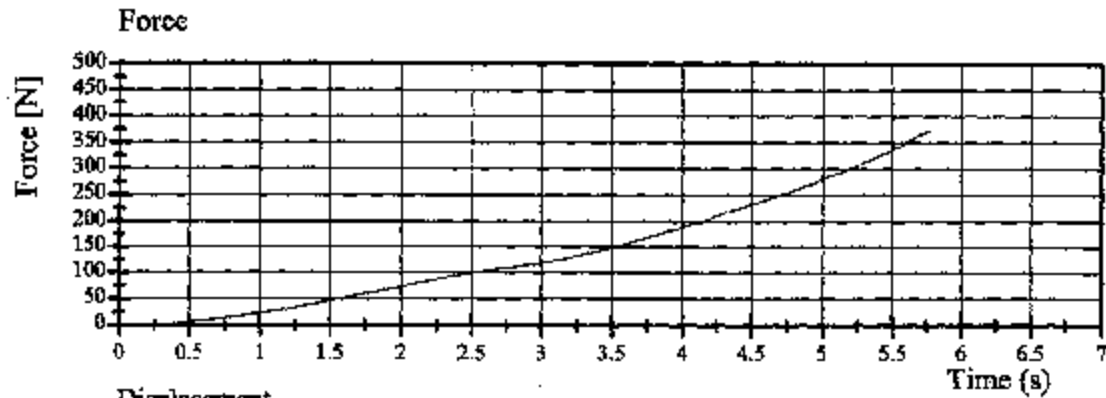
TRE

Transportation Research Center Inc.

572B Abdomen Compression Test

HIII SED Serial No. 028 Calibration No. 06 - 1

Test Date 05/01/2003



05.02.2003 11:02:38 5



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

01-MAY-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL02806

572F SN028 LEFT PELVIS CAL06

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	43.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	47.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.3 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

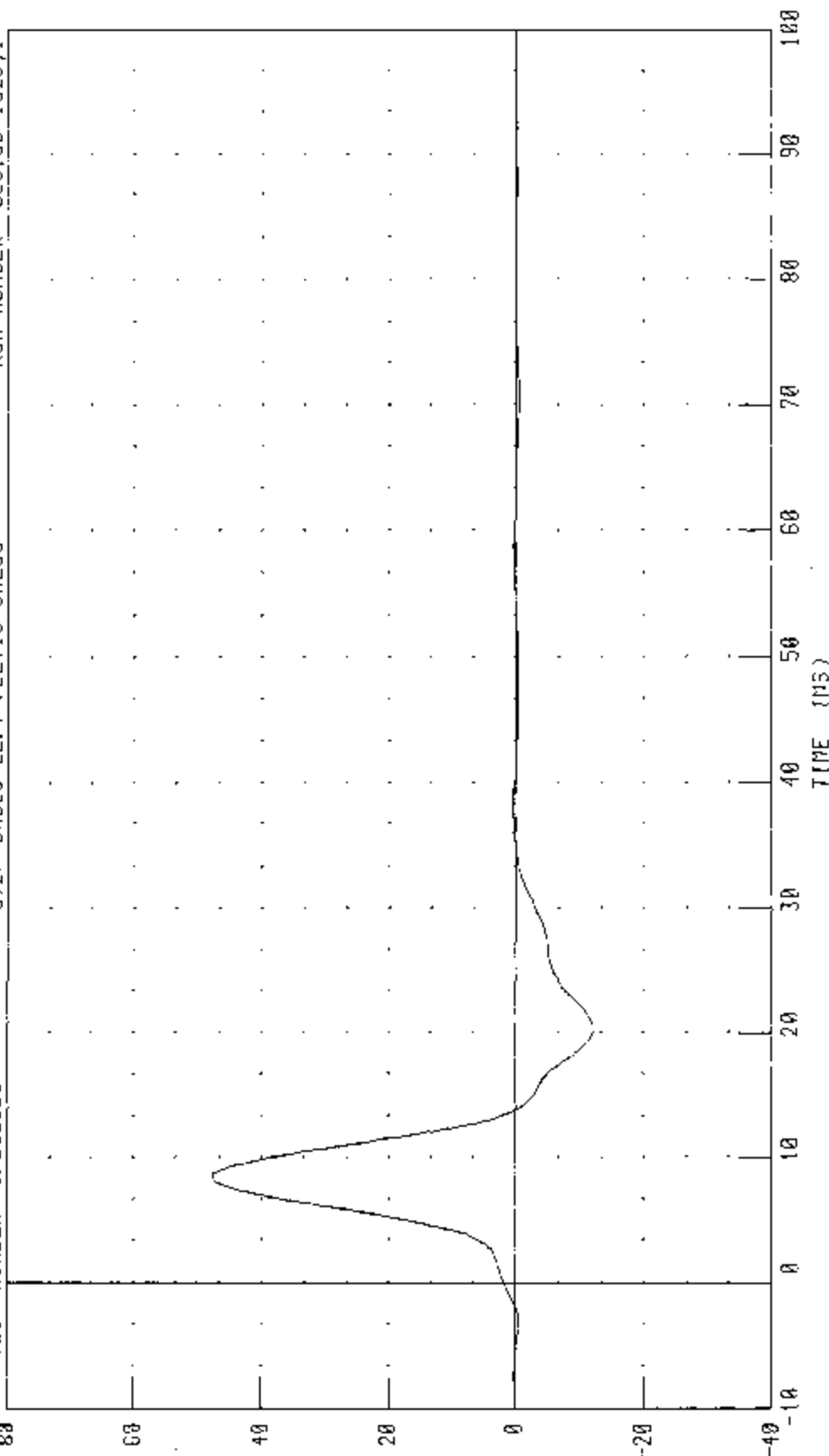
TECHNICIAN 

RUN NUMBER: 050903.1439;1

PART 572 F S I D PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

IRC TEST NUMBER: SPL02806 572F SN028 LEFT PELVIS CAL06 RUN NUMBER: 050103 1320,1



PEAK DATA 47.56 G @ 0.75 MS: -12.07 G @ 20.00 MS

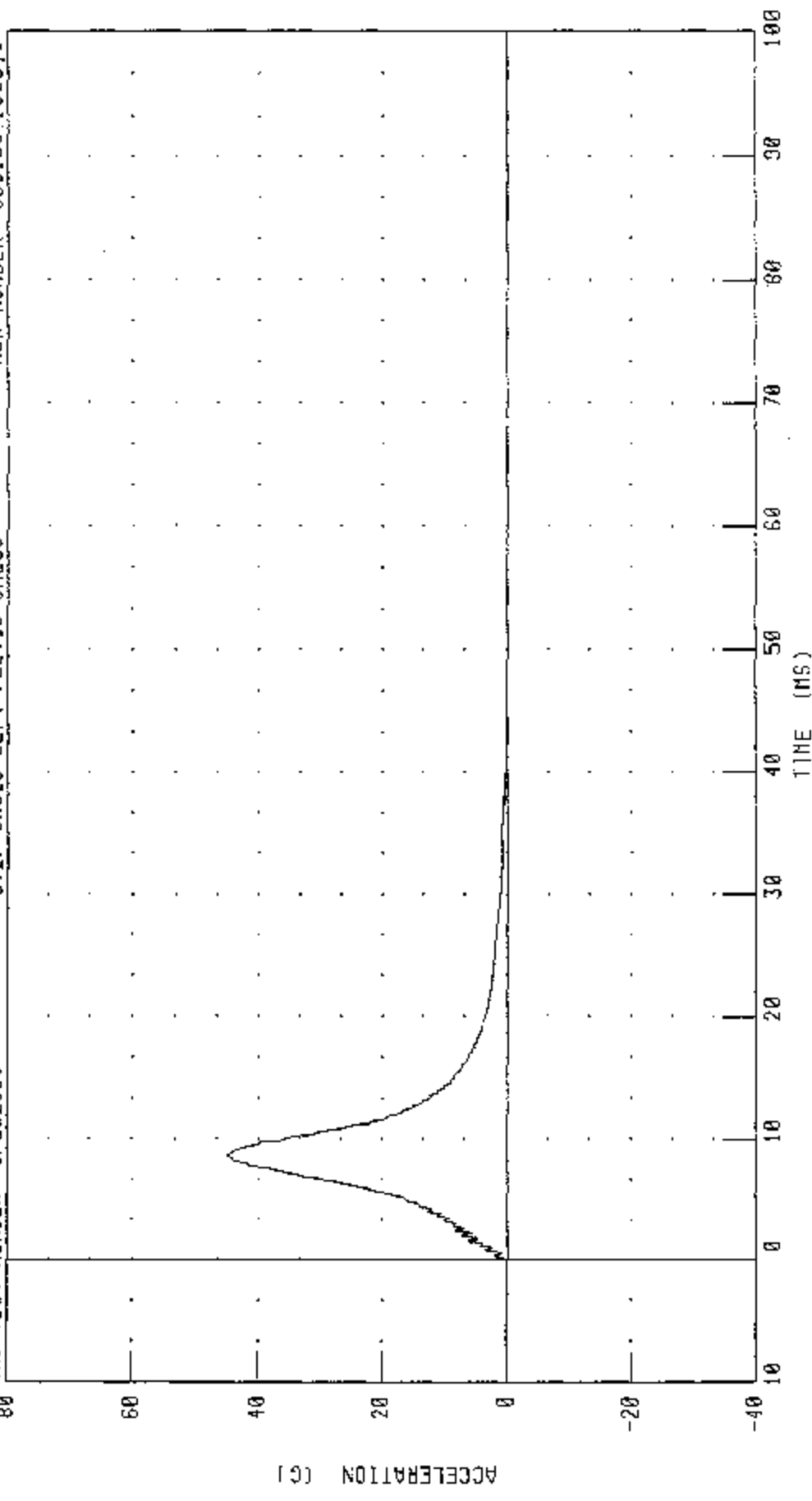
CHANNEL PEVYC FILIFR FIR 100

(C) NO1108372000

PART 572-f S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL02806 572F SN028 LEFT PELVIS CAL06 RUN NUMBER: 050103 1320.1



CHANNEL: PENXC FILTER: CH CLASS 1000 PEAK DATA: 44.95 G @ 8.72 MS; -0.12 G @ 49.12 MS

Calibration Test Results

Post-Test

SID: 065

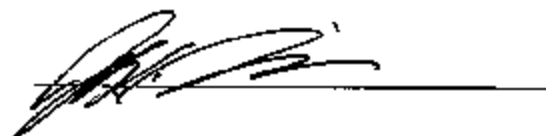
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Head Drop Test:	The head passed all lateral drop test requirements.
Lateral Neck Test:	The neck passed all impact test requirements.
Lateral Thorax Impact Test:	The thorax passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

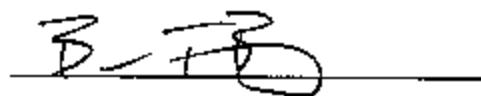
Transportation Research Center Inc.
572M SID/HIII Dummy
External Dimensions
Serial No. 065 Calibration No. 10

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	897 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Rib From Backline	RD	228.6 - 241.3 mm	238 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	512 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	371 mm	Yes
Top Rib Width From CVL	RW-1	165.1 - 180.3 mm	171 mm	Yes
Bottom Rib Width From CVL	RW-2	165.1 - 180.3 mm	171 mm	Yes
Difference Between Top & Bottom Rib Width from CVL		<= 2.5 mm	0.0 mm	Yes

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL HEAD DROP TEST

SID/HIII DUMMY

01-JUN-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. HDL06510

572M SID/HIII SN065 HEAD CAL10

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 deg. C	21.67 deg. C
RELATIVE HUMIDITY	10 - 70 %	43.00 %
PEAK RESULTANT ACCELERATION	120 - 150 G	135.35 G
PEAK LONGITUDINAL ACCELERATION	15 G MAX	-11.78 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 050103.1325;1

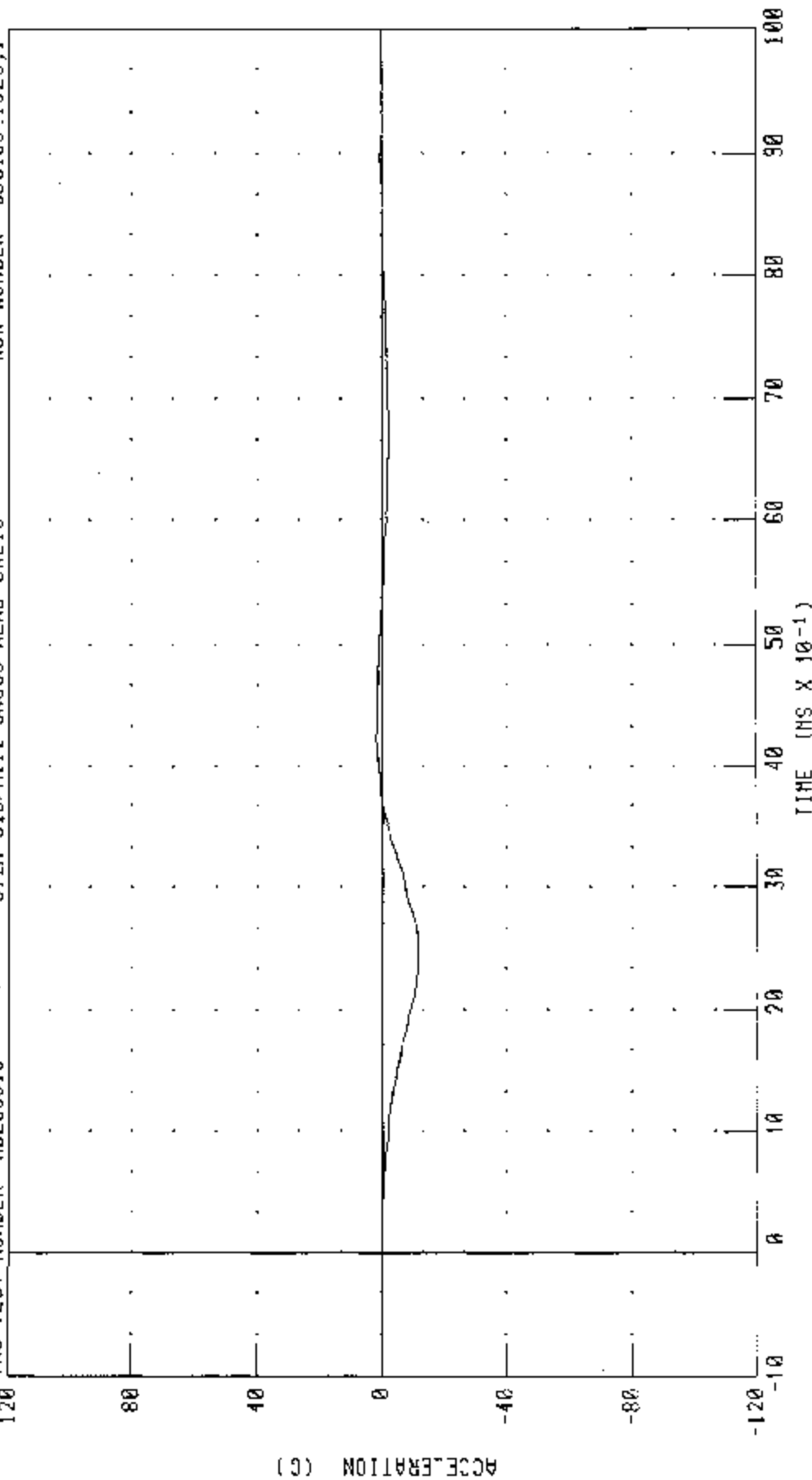
572M SID/HIII DUNNY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION X AXIS

TRC TEST NUMBER: HDL06510

572M SID/HIII SN065 HEAD CAL10

RUN NUMBER: 050103.1325.1



ACCELERATION (G)

TIME (MS X 10⁻¹)

CHANNEL: HEDXC

FILTER: CH. CLASS 1000

PEAK DATA: 1.72 G @ 4.24 MS; -11.78 G @ 2.48 MS

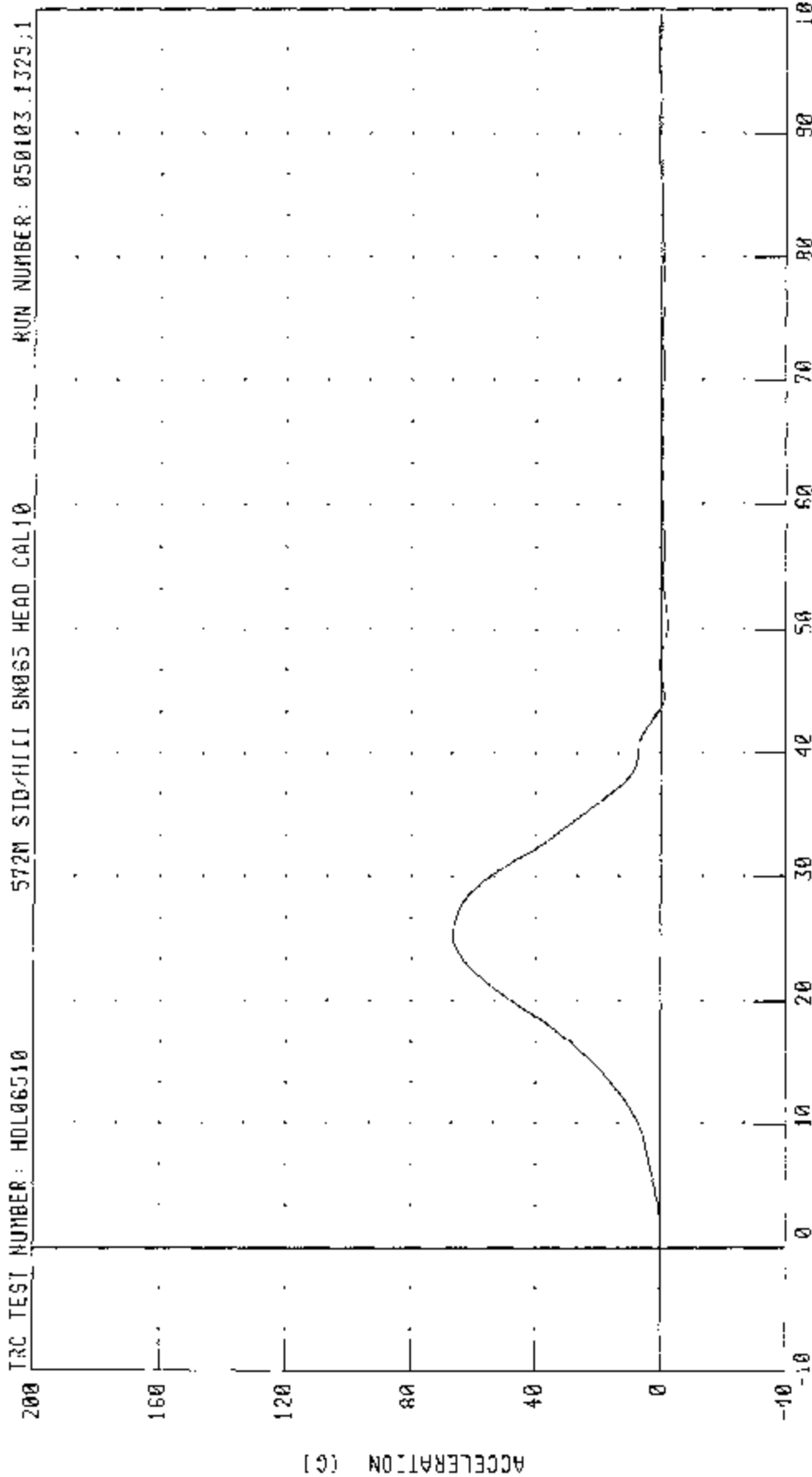
572M SID/HILL DUMMY CALIBRATION -- 35 DEGREF LEFT LATERAL HEAD DROP

HEAD ACCELERATION Y AXIS

TRC TEST NUMBER: HDL06510

572M SID/HILL 50055 HEAD CAL10

RUN NUMBER: 050103.1325.1



TIME (MS X 10⁻¹)

CHANNEL: HEDYC FILTER: CH. CLASS 1000

PEAK DATA 66.45 G @ 2.56 MS, -2.32 G @ 5.04 MS

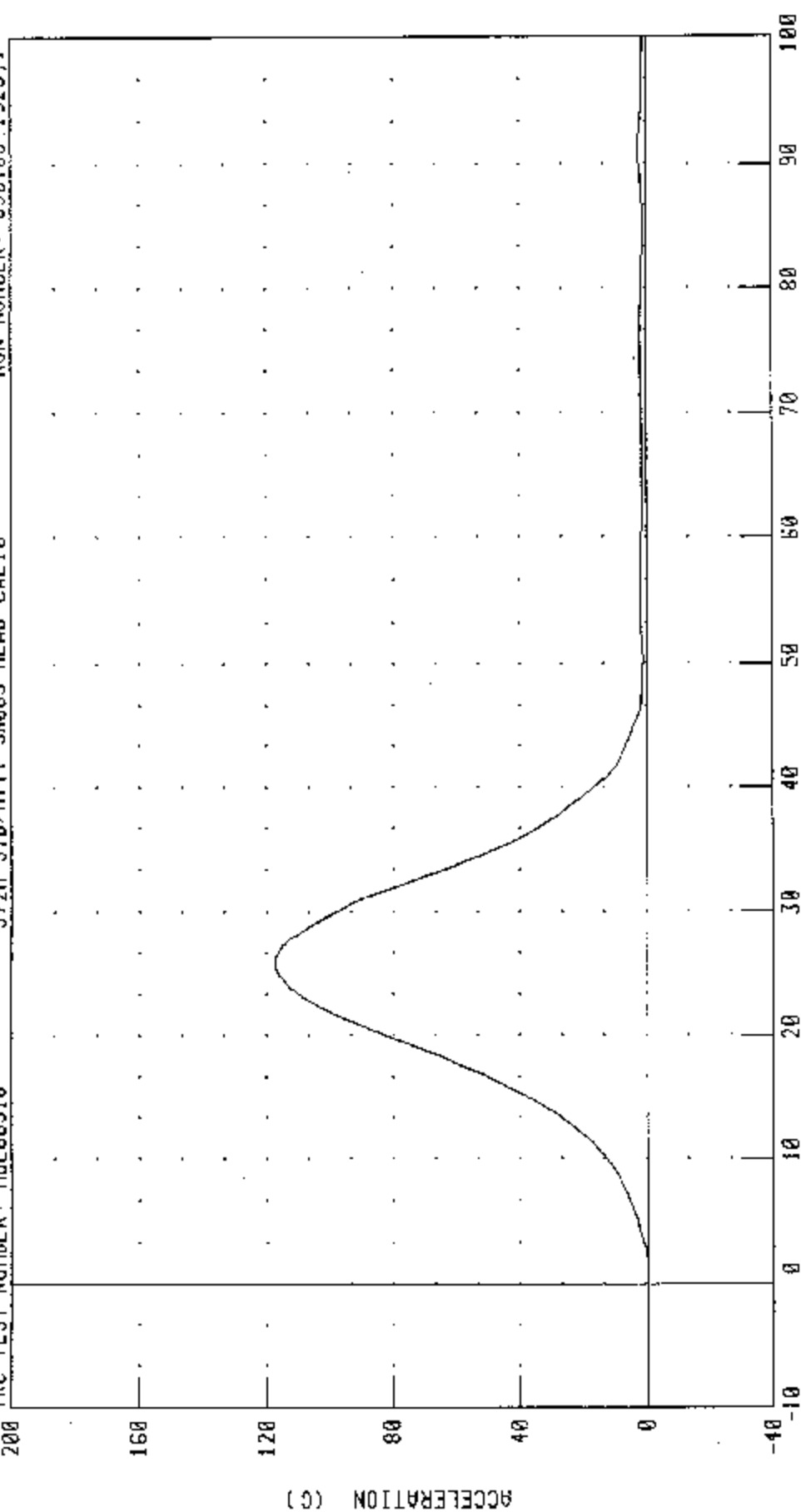
572M SID/HIT DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: HDL06510

572M SID/HIT SN065 HEAD CAL10

RUN NUMBER: 050103.1325.1



TIME (MS X 10⁻¹)

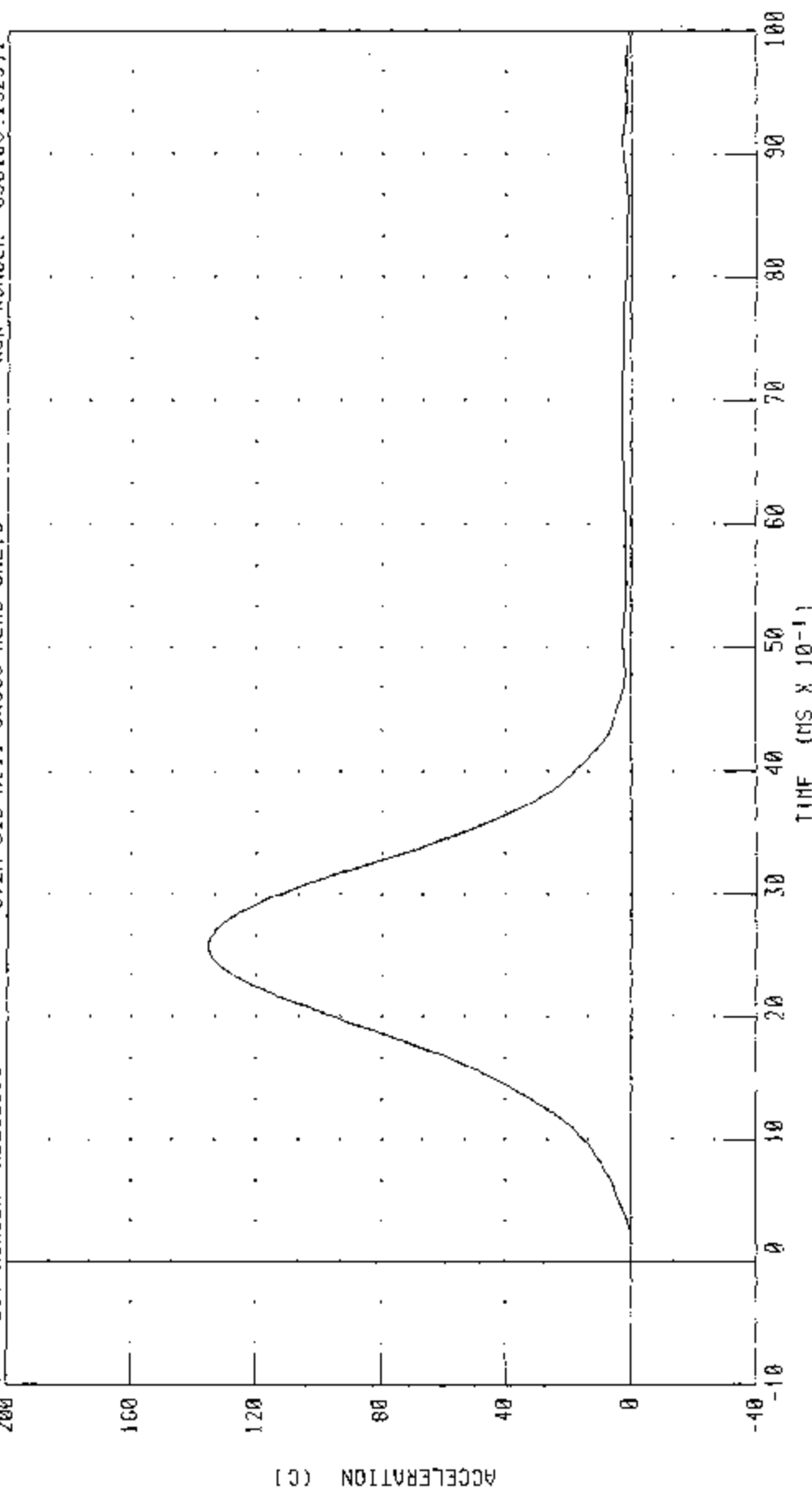
CHANNEL: HDZC FILTER: CH. CLASS 1000

PEAK DATA: 117 35 0 2.56 MS, -0.12 G 0 -0 24 MS

572N SID/HILL DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

HEAD RESULANT ACCELERATION

TRC TEST NUMBER: HOL06510 572M SID/HILL SN065 HEAD CAL10 RUN NUMBER: 050103.1325.1



TIME (MS X 10⁻¹)

CHANNEL: HFDRG FILTER: CH CLASS 1000

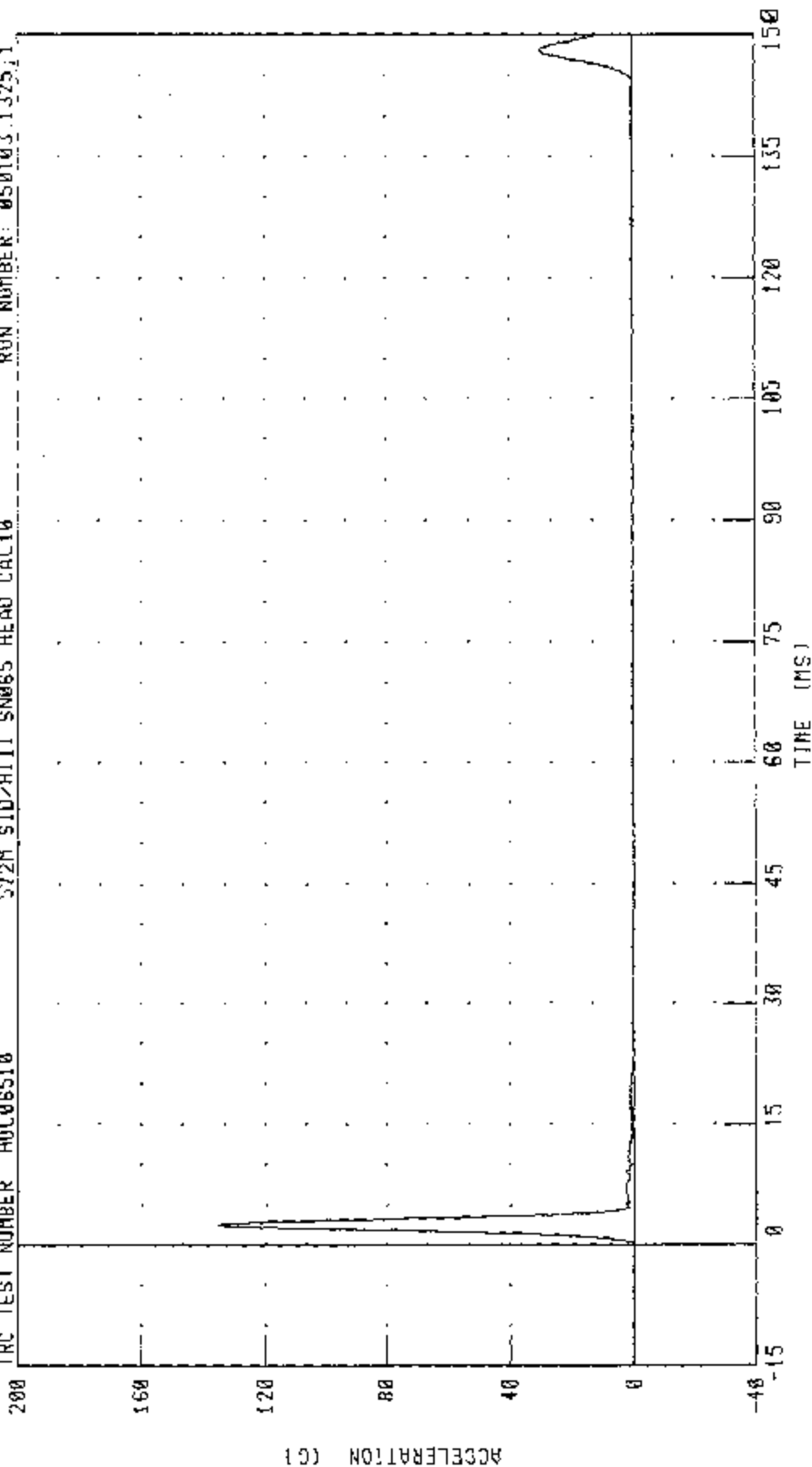
PEAK DATA: 135.35 G @ 2.56 MS; 0.00 G @ -0.00 MS

572M SID/HILL DUMMY CALIBRATION -- 35 DEGREE LEFT LATERAL HEAD DROP

CHECK PLOT -- HEAD RESULTANT ACCELERATION

572M SID/HILL SN065 HEAD CAL10 RUN NUMBER: 050103.1325.1

TRC TEST NUMBER H0L06510



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 135.35 G @ 2.56 MS, 0.00 G @ -13.04 MS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL NECK TEST

SID/HIII DUMMY

01-JUN-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO. NFL06510

572M H3/SID SN065 NECK CAL10

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 deg. C	21.67 deg. C
RELATIVE HUMIDITY		10 - 70 %	43.00 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.99 M/S
INTEGRATED VELOCITY	10 MS	1.96 - 2.55 M/S	2.38 M/S
	20 MS	4.12 - 5.10 M/S	4.81 M/S
	30 MS	5.73 - 7.01 M/S	6.71 M/S
	40 - 70 MS	6.27 - 7.64 M/S	7.12- 7.21 M/S
MAXIMUM MIDSAGGITAL PLANE ROTATION		66 - 82 deg.	71.85 deg.
ROTATION ANGLE DECAY TIME FROM PEAK TO ZERO		58 - 67 MS	61.76 MS
MAXIMUM MOMENT ABOUT OCCIPITAL CONDYLE		73 - 88 NM	80.99 NM
POSITIVE MOMENT DECAY TIME FROM PEAK TO ZERO		49 - 64 MS	51.60 MS
TIME OF MAXIMUM ROTATION AFTER MAXIMUM MOMENT		2 - 16 MS	7.04 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

RUN NUMBER: 050103.1734;1

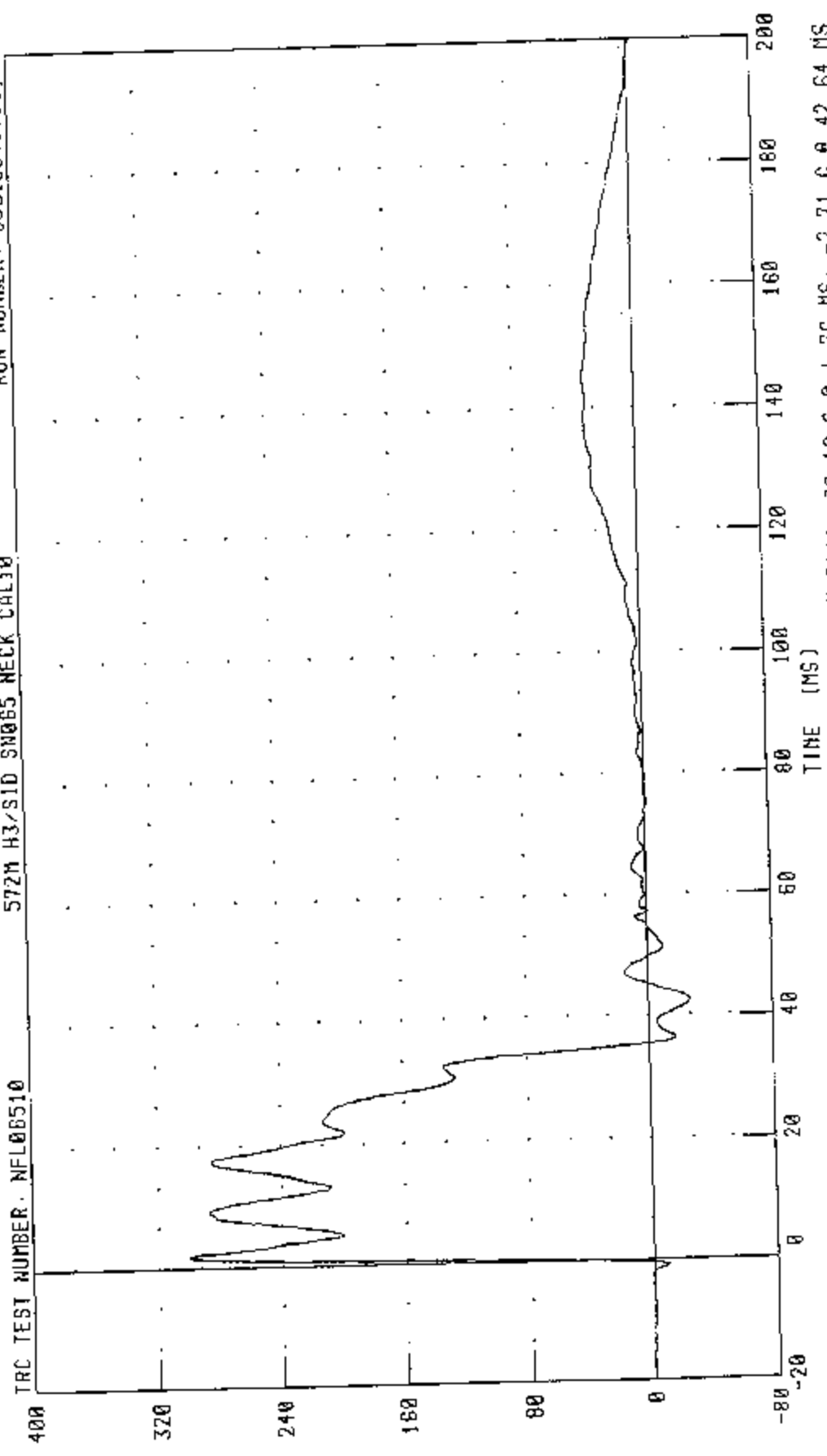
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

PENDULUM DECELERATION

RUN NUMBER: 050103.1735.1

572M H3/SID SN065 NECK CAL10

TRC TEST NUMBER: NFL06510



PEAK DATA: 30.12 G @ 1.76 MS; -2.71 G @ 42.64 MS

CHANNEL: PENXC FILTER: CH CLASS 180

ACCELERATION (G X 10-1)

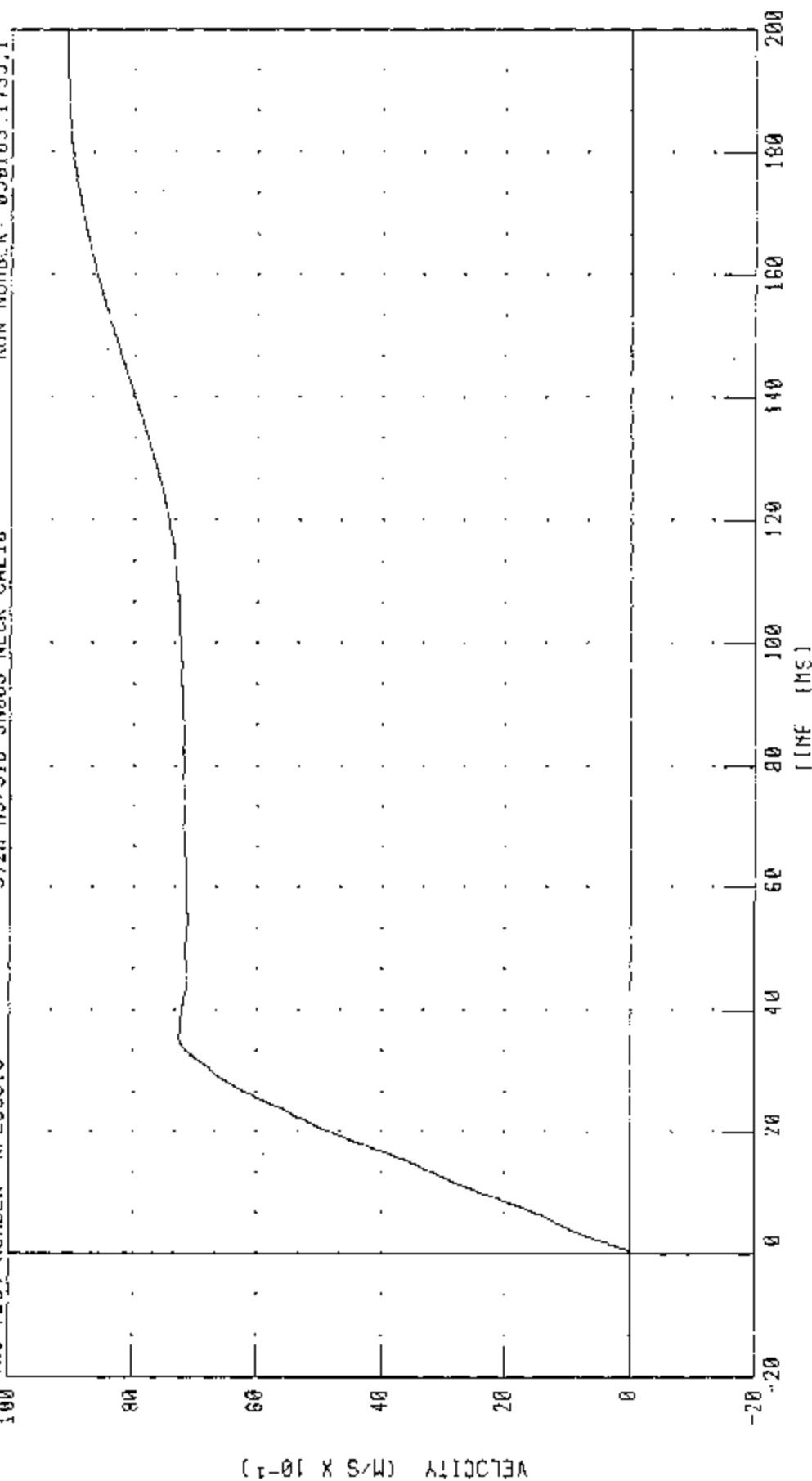
572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

INTEGRATED PENDULUM VELOCITY

TRC TEST NUMBER: NFL06510

572M H3/S10 SN065 NECK CAL10

RUN NUMBER: 050103.1735.1



TIME (MS)

PEAK DATA: 9.08 M/S @ 197.68 MS; -0.01 M/S @ -0.48 MS

CHANNEL PENXV1 FILTER CH. CLASS 100

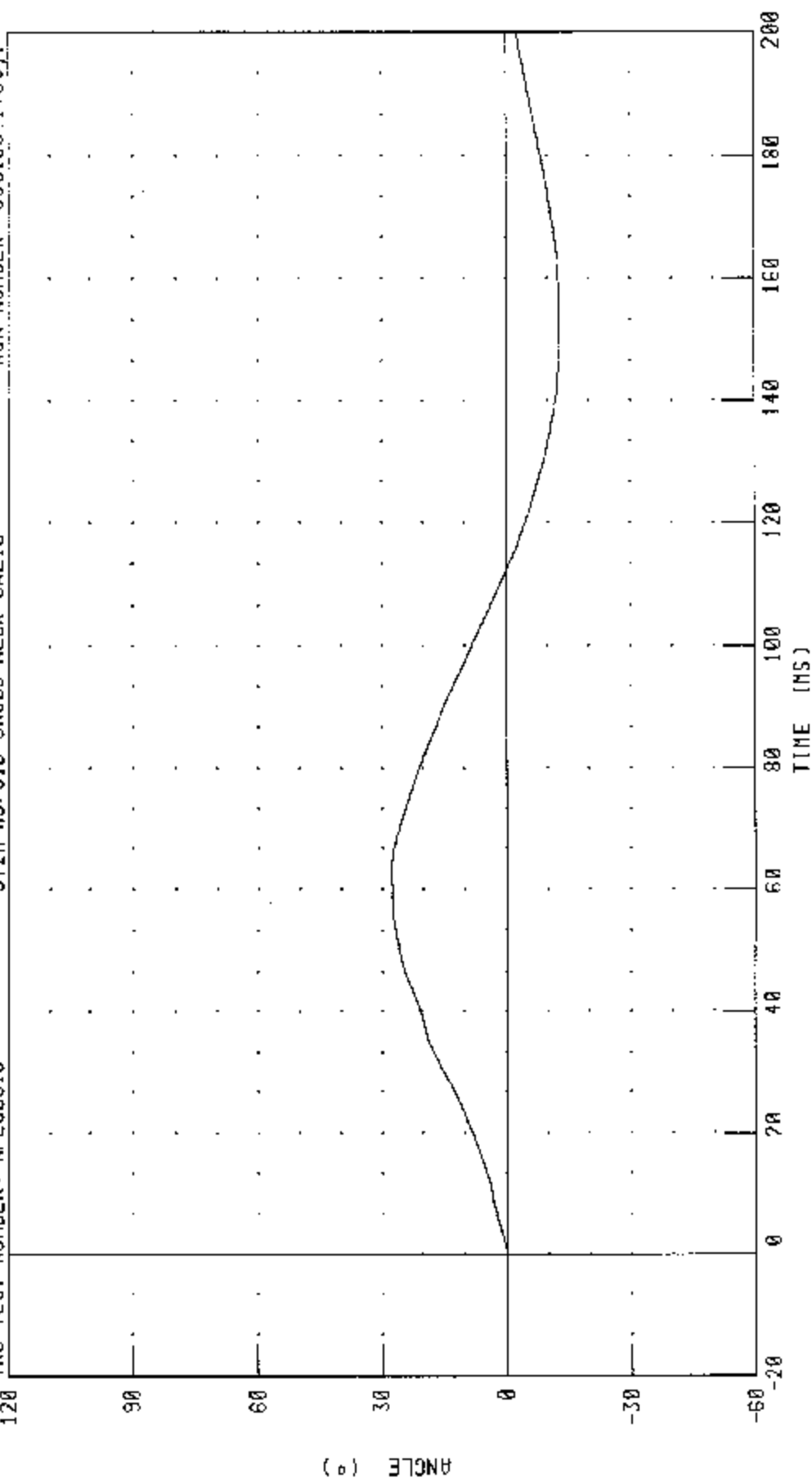
572H H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: NFL06510

572H H3/S10 SN065 NECK CAL10

RUN NUMBER: 050103.1735.1



CHANNEL: BETA

FILTER: CH. CLASS 60

TIME (MS)

PEAK DATA: 27.85 ° @ 62.96 MS, -12.96 ° @ 154.16 MS

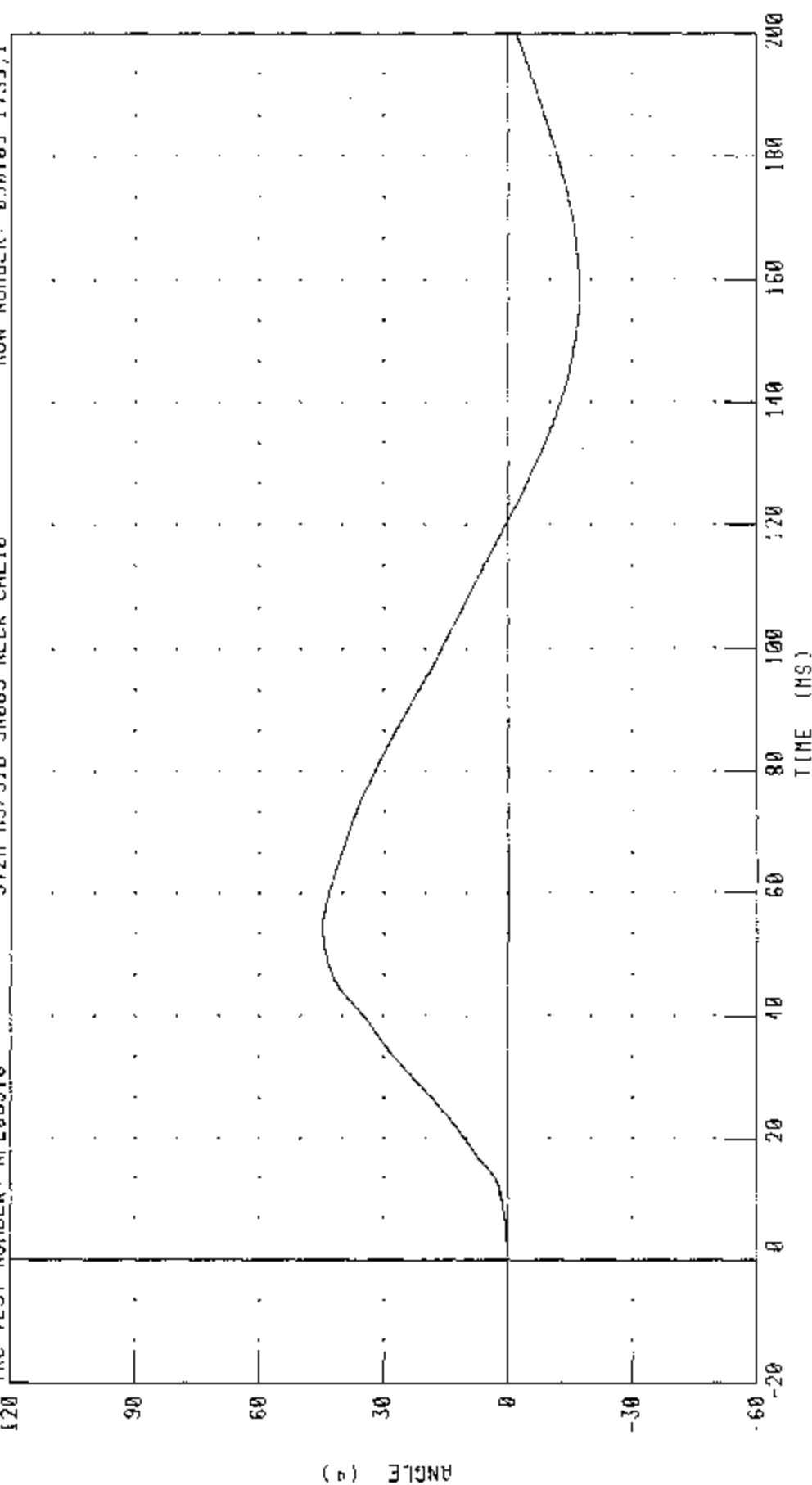
5/2M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFO06510

572M H3/S10 SN065 NECK CAL10

RUN NUMBER: 050103 1735;1



PEAK DATA 44 64 ° 0 54 56 MS, -17 21 ° 0 157.76 MS

CHANNEL: TIRETO FILTER: CH. CLASS 60

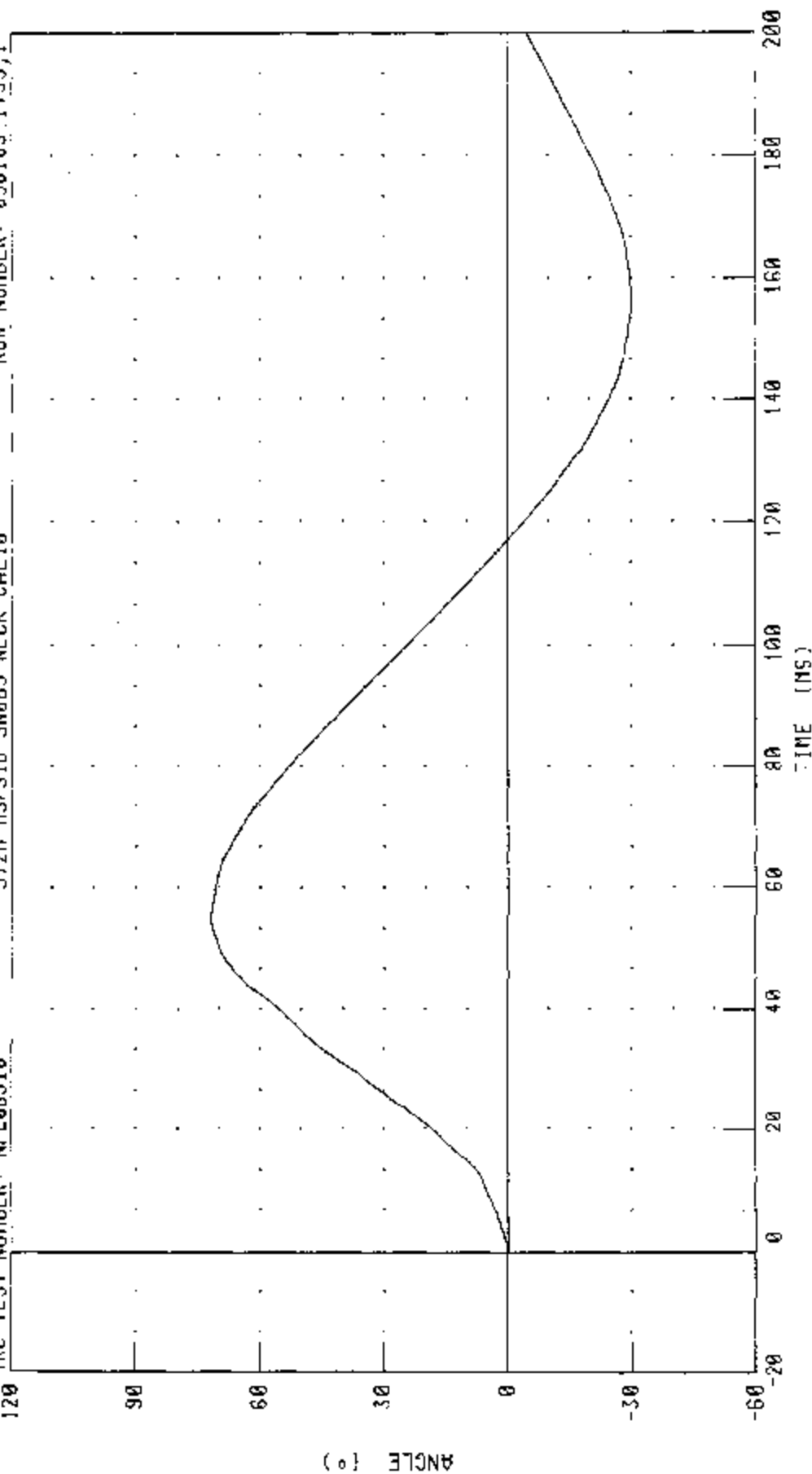
572N H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL ROTATION

TRC TEST NUMBER: NFI06510

572N H3/S10 SN065 NECK CAL10

RUN NUMBER: 050103.1735,1



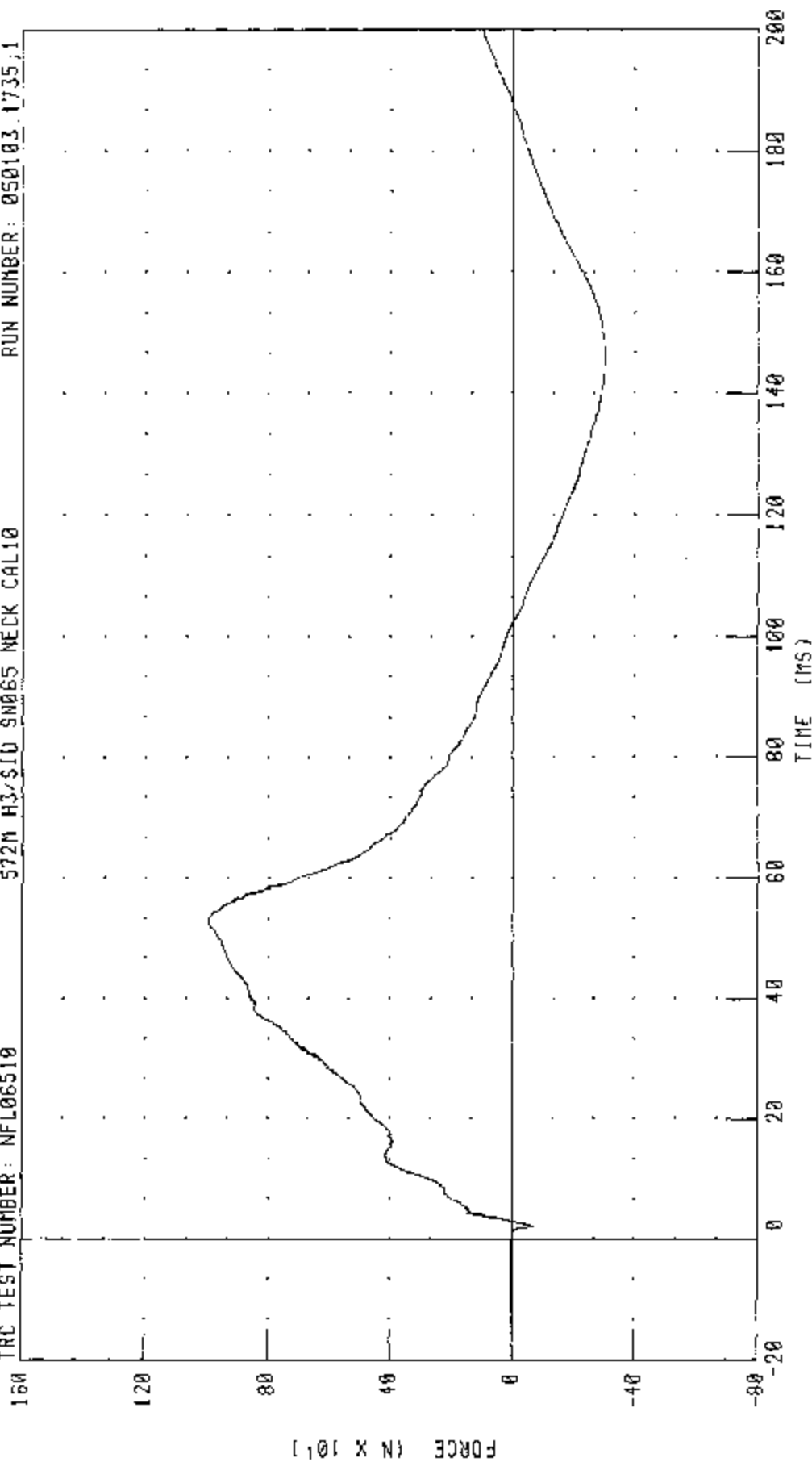
CHANNEL: TOTON FILTER: CH CLASS: 60

PEAK DATA: 71.85 ° @ 55.36 MS, -30.89 ° @ 156.48 MS

572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK FORCE Y AXIS

TRC TEST NUMBER: NFL06510 572M H3/SID SN065 NECK CAL10 RUN NUMBER: 050103 1735.1



CHANNEL: NEKYF FILTER: CH CLASS 1000 PEAK DATA 995.88 N @ 52.96 MS, -302.29 N @ 145.68 MS

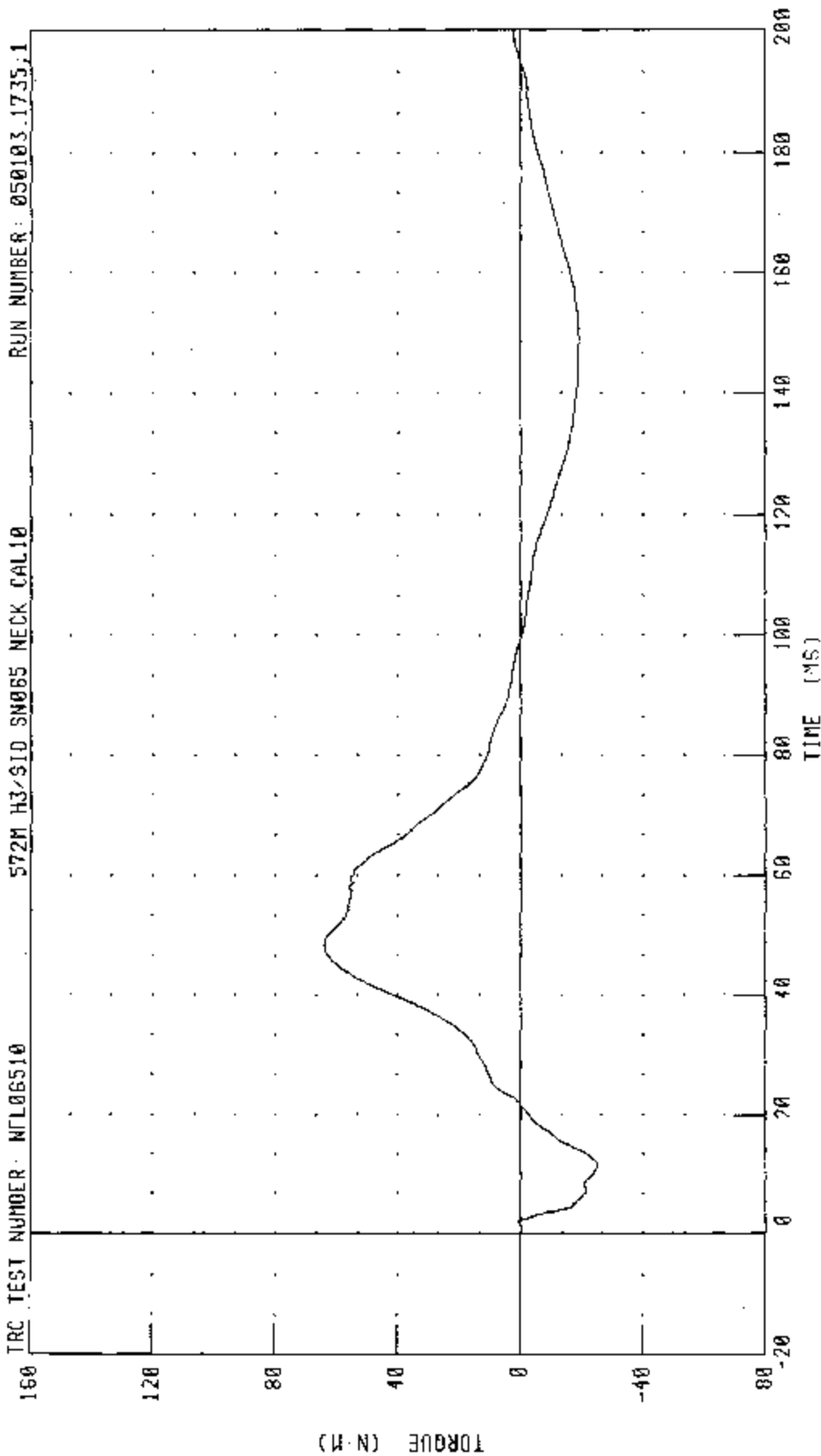
572M H3/S10 DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

NECK MOMENT X AXIS

TRC TEST NUMBER: MFL06510

572M H3/S10 SN065 NECK CAL10

RUN NUMBER: 050103.1735.1



CHANNEL: NEKX1 FILTER CH. CLASS 600

PEAK DATA 64.21 N-M @ 48.16 MS, -25.13 N-M @ 11.60 MS

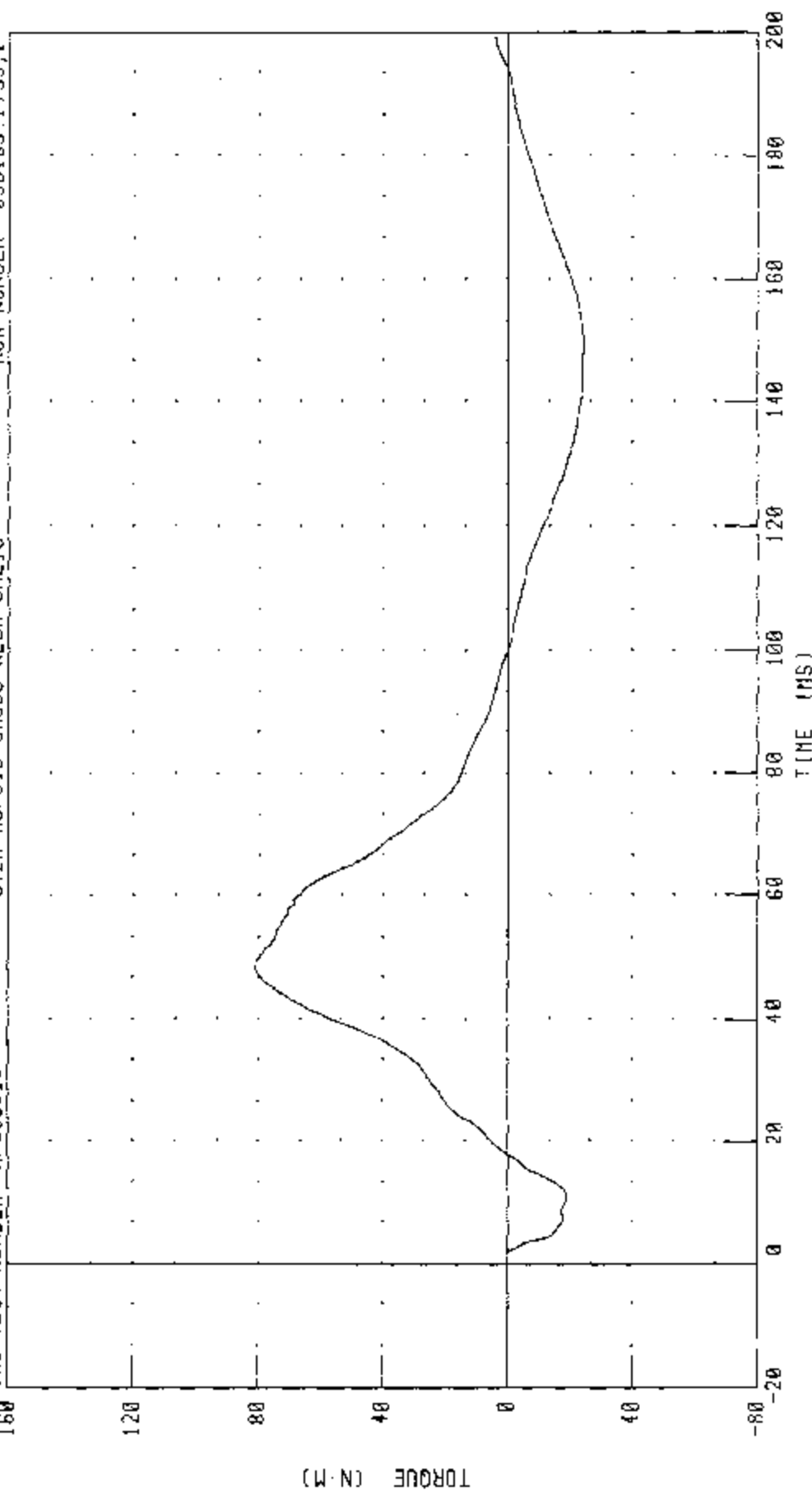
572M H3/SID DUMMY CALIBRATION -- LEFT LATERAL NECK TEST

TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: NFL06510

572M H3/SID SN065 NECK CAL10

RUN NUMBER 050103.1735.1



PEAK DATA: 80 99 N M @ 48 32 MS; -24 45 N M @ 149.44 MS

CHANNEL: NEKOM FILTER CH CLASS 600

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

01-JUN-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STL06510

572F SID SN065 L.THORAX CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	43.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.31 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	44.5 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	43.9 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	21.0 G

TEST MEETS SPECIFICATIONS

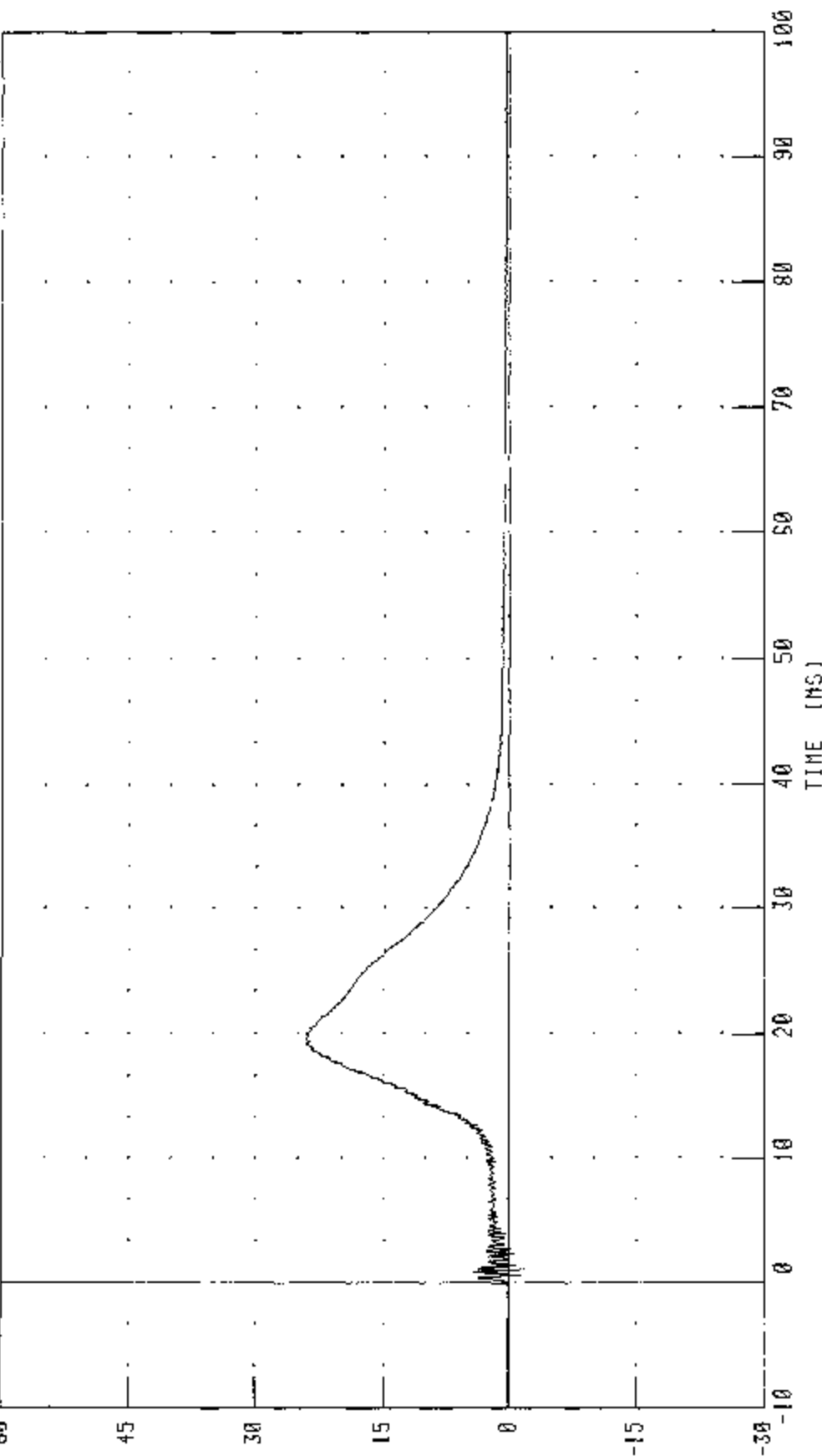
TECHNICIAN 

RUN NUMBER: 050103.1059;1

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: 57L06510 572F S10 SN065 L THORAX CAL10 RUN NUMBER: 050103 1100,1



PFAP DATA: 21 08 G @ 19 60 MS; -1.89 G @ 1.04 MS

CHANNEL PENXG FILTER: CH. CLASS 1000

(C) NC1104313004

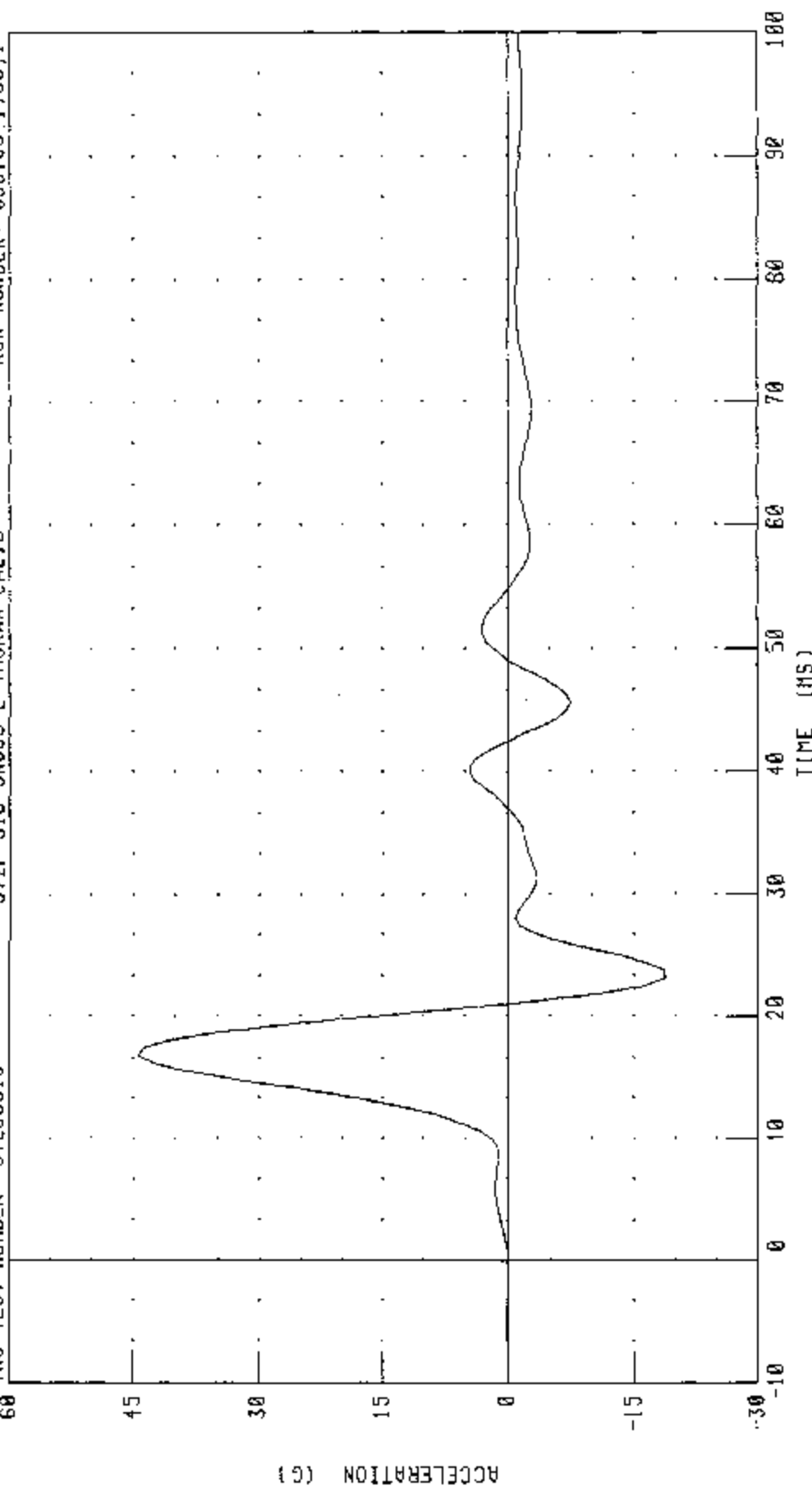
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: STL06510

572F SID SN055 L THORAX CAL10

RUN NUMBER: 050103.1100.1

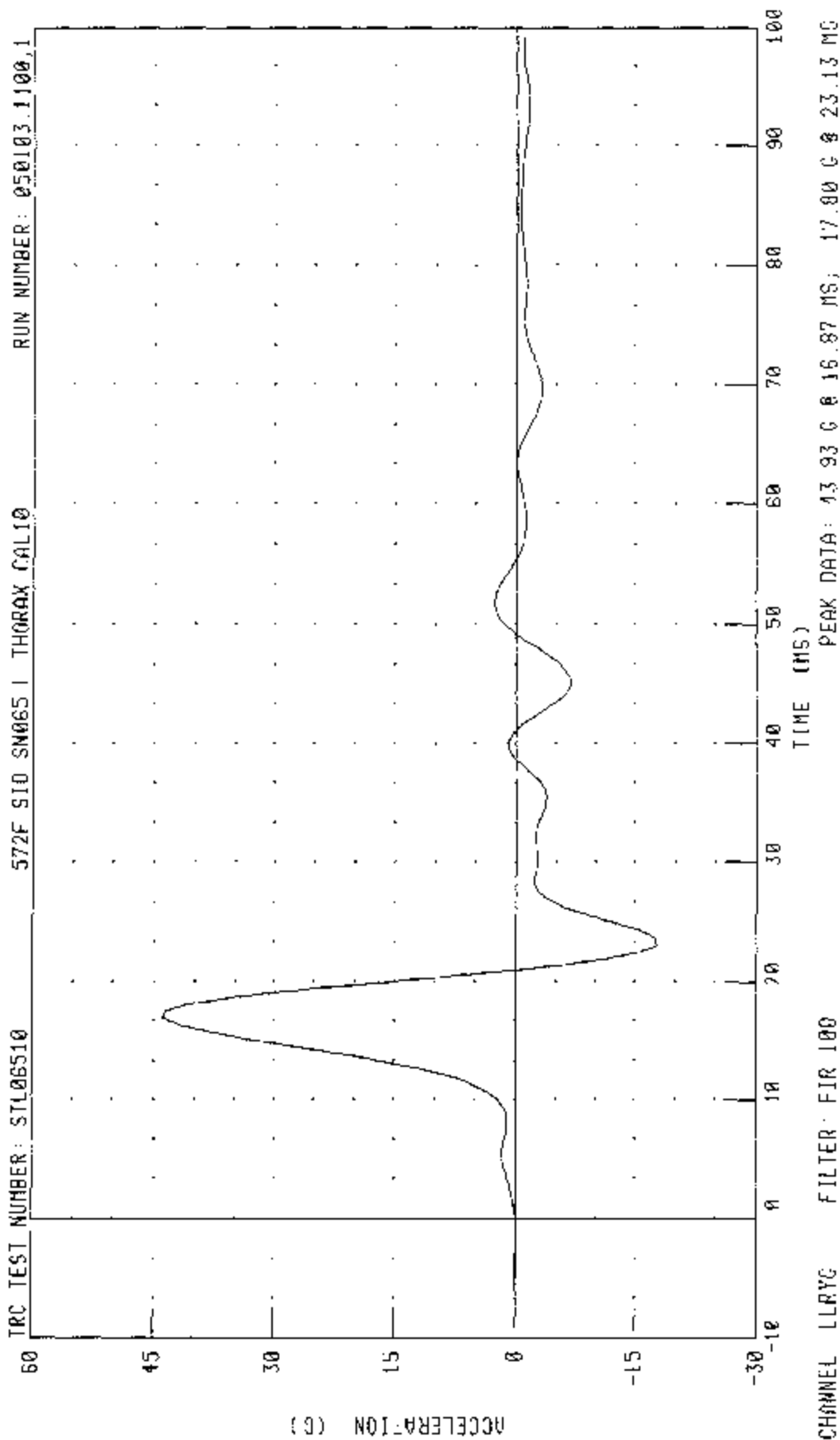


CHANNEL: IURYC FILTER: FIR 100

PEAK DATA: 14.48 G @ 16.87 MS, -18.76 G @ 23.13 MS

PART 572-F S.I.D THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS



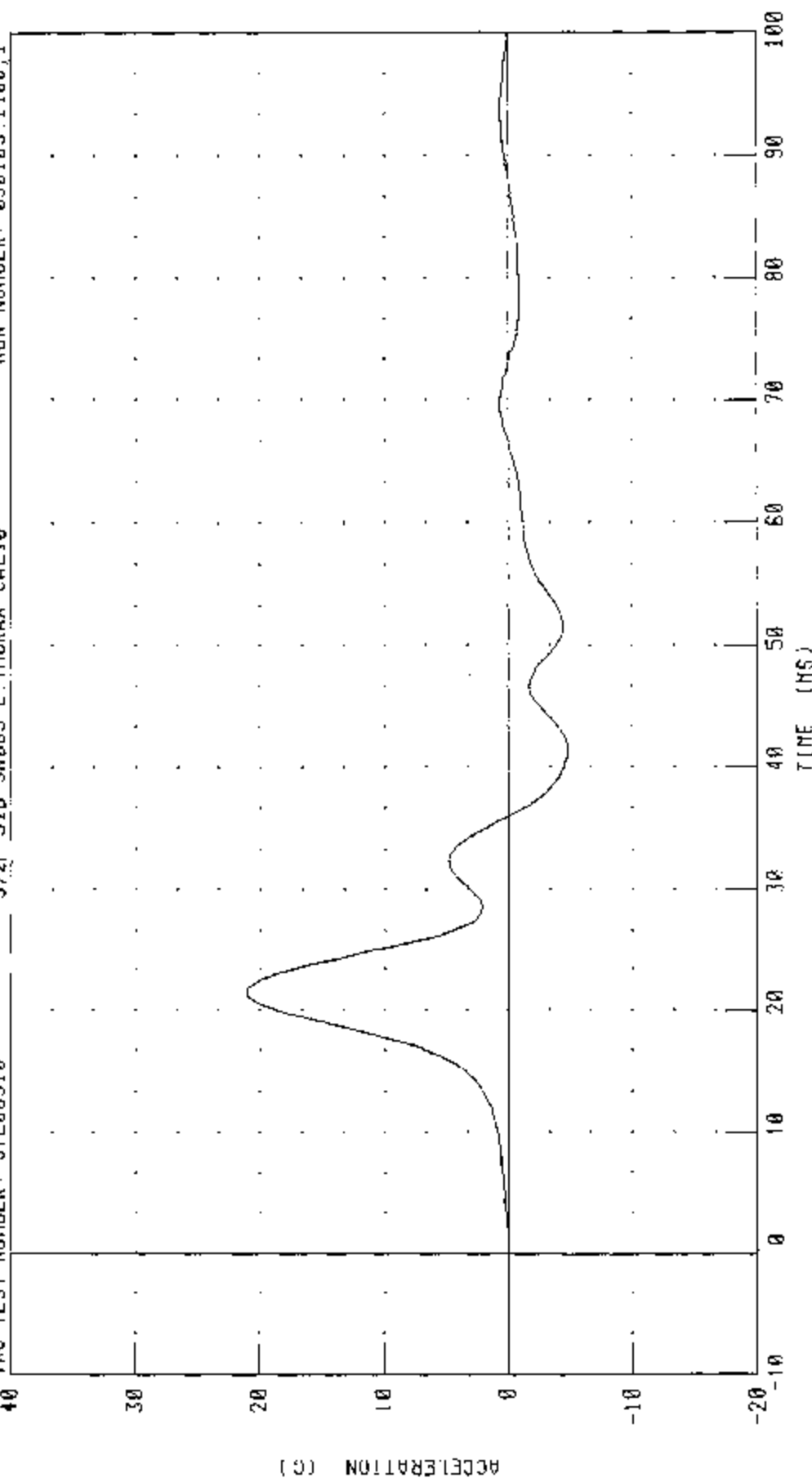
PART 572-F S I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06510

572F SID SN065 L THORAX CAL10

RUN NUMBER: 050103.1100.1



CHANNEL: T12VC FILTER: FIR 100

PEAK DATA: 20 96 G @ 21.25 MS; -4 81 G @ 41.25 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 01-May-03

TRC, INC.

TEST NO: 065C10TF1

572B SN 065 TORSO FLEX CAL 10

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6° C	22.2 °C
RELATIVE HUMIDITY	10 – 70 %	43 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	133.4 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	173.5 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	226.9 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	7 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test


HIII SID Serial No. 065 Calibration No. 10 - 1

Test Date 05/01/2003

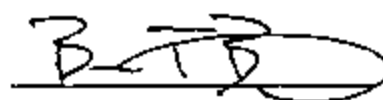
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.2 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.4 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



05.02.2003 11:06:36 41

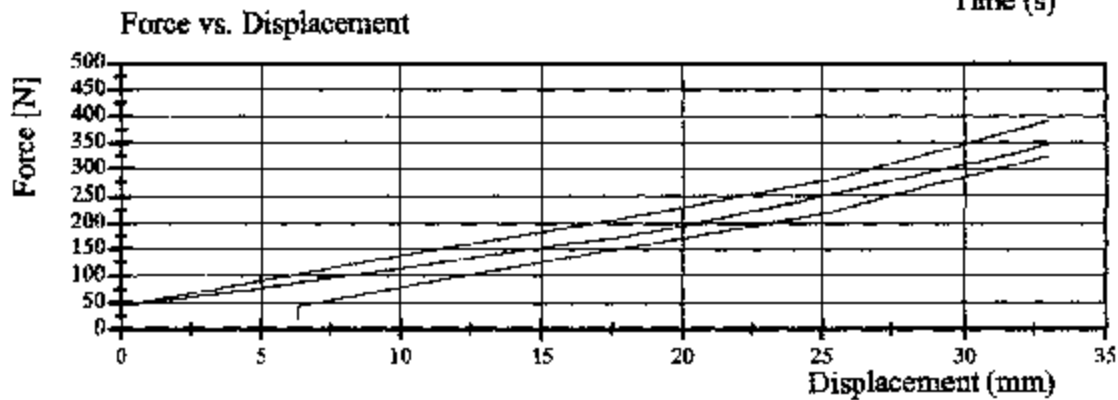
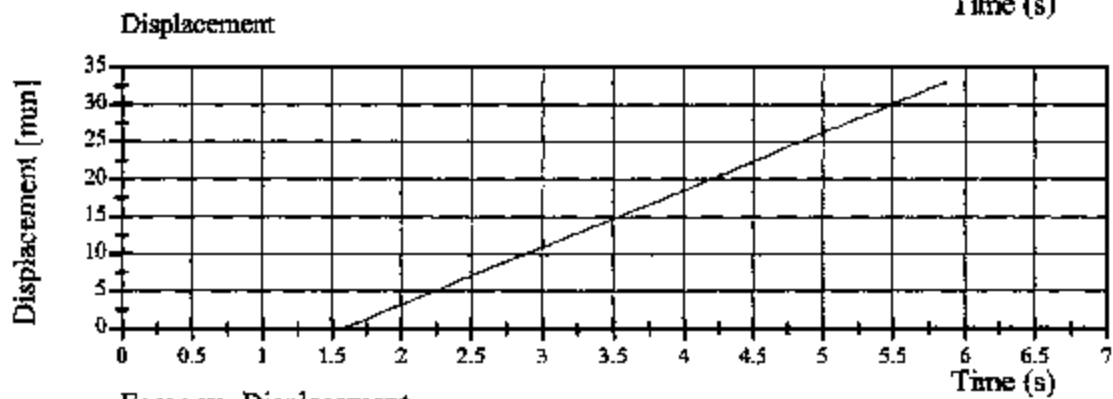
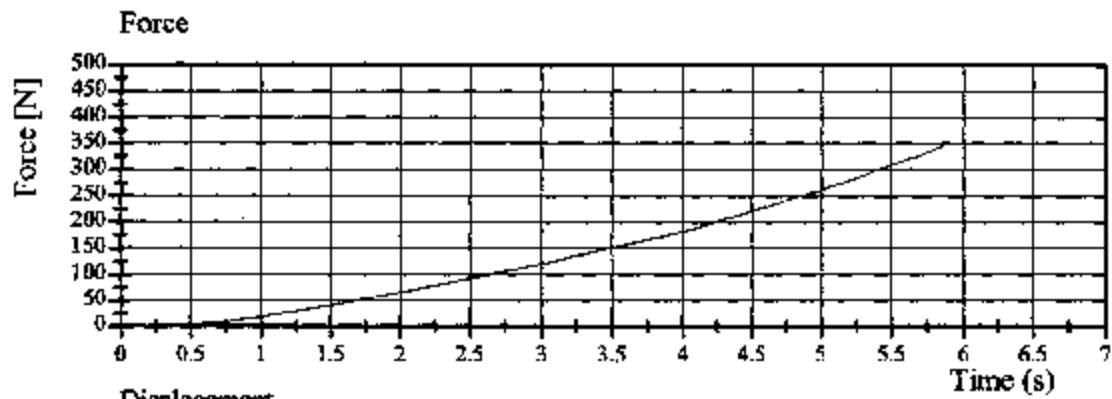


Transportation Research Center Inc.

572B Abdomen Compression Test

HIH SID Serial No. 065 Calibration No. 10 - 1

Test Date 05/01/2003



05.02.2003 11:06:37 41



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

01-JUN-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06510

572F SN065 LEFT PELVIS CAL10

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	43.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.28 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	54.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

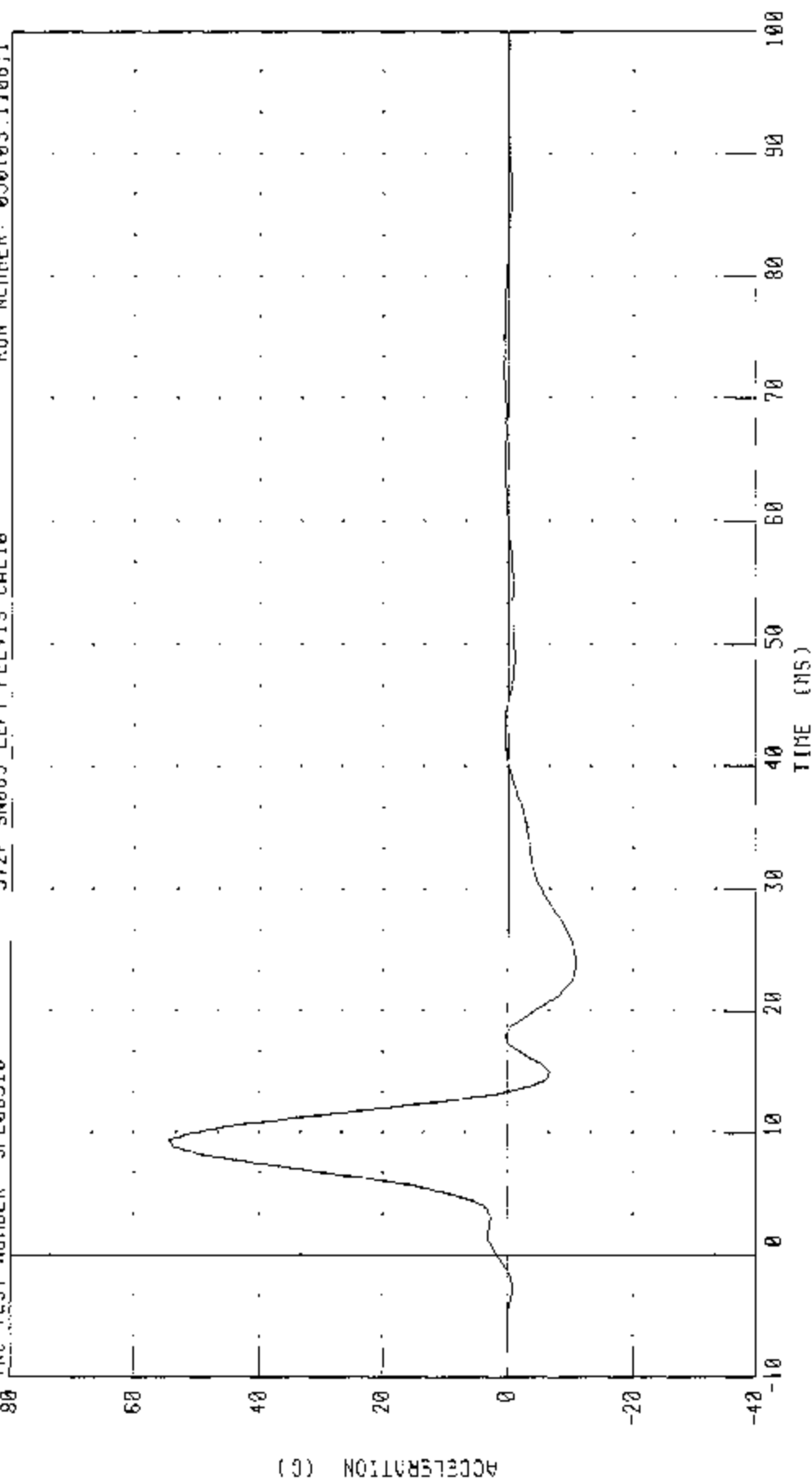
TECHNICIAN 

RUN NUMBER: 050103.1107;1

PART 572-F S I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06510 572F SN065 LEFT PELVIS CAL10 RUN NUMBER: 050103.1108.1

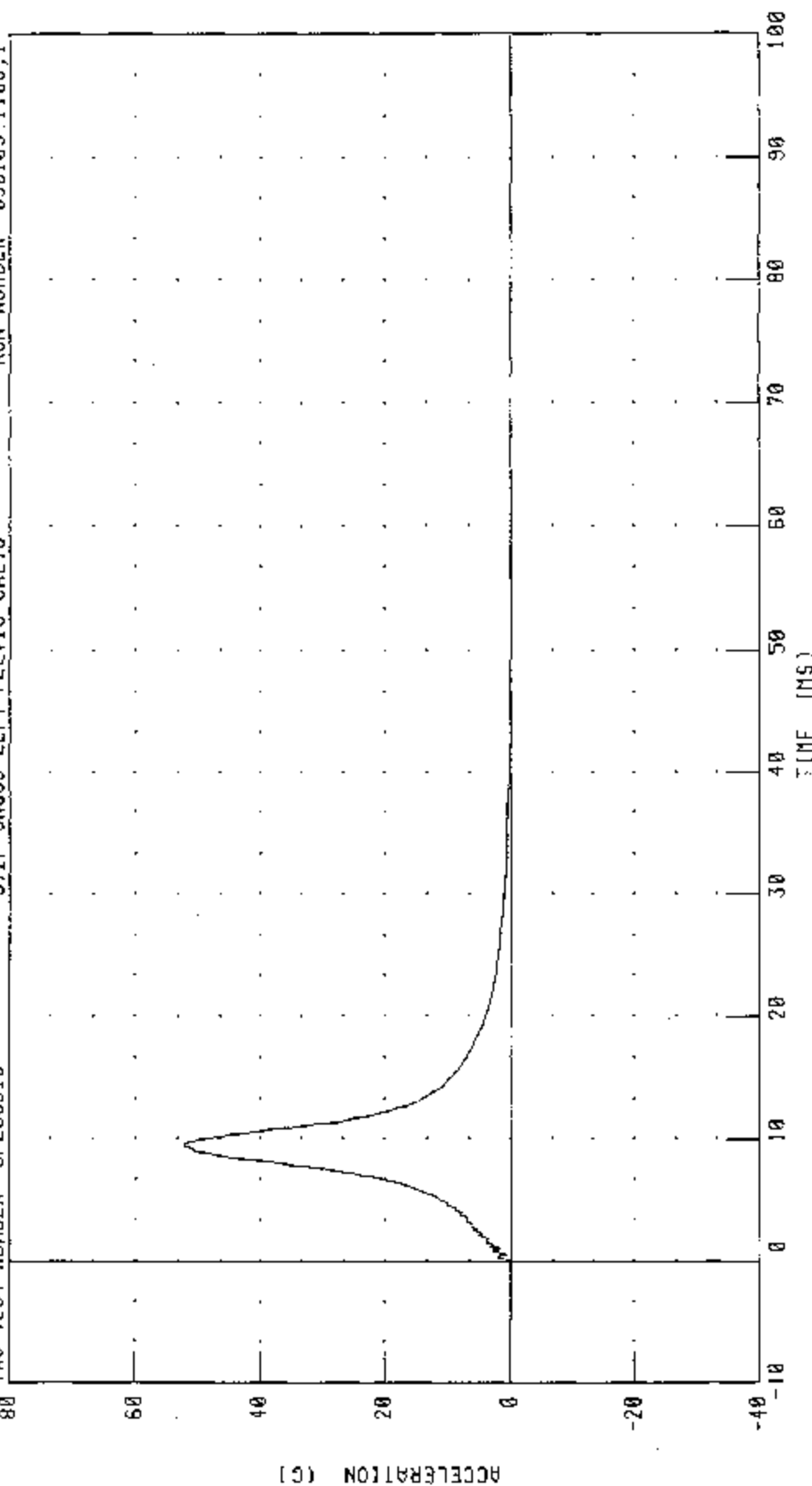


CHANNEL: PELVIC FILTER: FIR 100 PEAK DATA: 54.52 60.937 MS, -10.97 G @ 24.58 MS

PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06510 572F SN065 LEFT PELVIS CAL10 RUN NUMBER 050103.1108.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 52.32 G @ 9.52 MS; -0.21 G @ 62.00 MS

Type: HIII SID S/N: 028 Mfr: Vector Test Date: 04/30/03
 Proj./Seg. No.: 20020455-1150 Test Eng.: Ginny Watters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) N/A
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX: Left Side Configuration		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolts	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 04/21/03

Type: III SID S/N: 065 Mfr: Denton Test Date: 04/30/03Proj./Seg. No.: 20020455-1150 Test Eng.: Ginny Watters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) N/A
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX: Left Side Configuration		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 04/28/03

Transportation Research Center Inc.

SID Post-Use Inspection

Type: HIII SID S/N: 028 Mfr: Vector Test Date: 04/30/03

Proj./Seg. No.: 20020455-1150 Test Eng.: Ginny Watters

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX: Left Side Configuration	
Jacket Condition	*
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: Re-glued right side jacket (bottom of zipper coming loose)

No other damage to report.

Inspection Completed By: J. Clarridge

Date: 05/01/03

Transportation Research Center Inc.

SID Post-Use Inspection

Type: HILL SID S/N: 065 Mfr: Denton Test Date: 04/30/03Proj./Seg. No.: 20020455-1150 Test Eng.: Ginny Watters

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX: Left Side Configuration	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.Inspection Completed By: J. ClarridgeDate: 05/01/03

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

- +X: Forward
- +Y: Rightward
- +Z: Downward

Potentiometers:

- +Chest longitudinal deflection: Outward
- +Chest lateral deflection: Rightward
- +Seat belt displacement: Outward
- +Seat belt extension: Elongation
- +Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)

Rotation potentiometers:

- +About the X-axis: Left foot-eversion
Right foot-inversion
- +About the Y-axis: Left/right foot-dorsiflexion
- +About the Z-axis: Left foot-internal
Right foot-external

Load cells:

- +Femur force: Tension
- +Seat belt force: Tension
- +Barrier force: Tension

Neck load cells:

- +X force: Head pushed rearward
- +Y force: Head pushed leftward
- +Z force: Head pulled upward (tension on neck)
- +X moment: Left ear rotating toward left shoulder
- +Y moment: Chin rotating toward chest
- +Z moment: Chin rotating toward left shoulder

Tibia load cells:

- +X force: Ankle forward, knee rearward
- +Y force: Ankle rightward, knee leftward
- +Z force: Tension
- +X moment: Bottom of tibia moving leftward
- +Y moment: Bottom of tibia moving rearward

Sign Convention, Cont'd.
SAE J211 MAR95

Lumbar load cells: +X force: Chest rearward, pelvis forward
 +Y force: Chest leftward, pelvis rightward
 +Z force: Chest upward, pelvis downward
 +X moment: Left shoulder toward left hip
 +Y moment: Sternum toward front of legs
 +Z moment: Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report; occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report

4/30/2003 8:13:06 AM

Name of Test 030430

Name of DAU DAUA

System MINIDAU

Chan.#	Sensor #	Mnemonic	Description	System	Dir.	Range	Pol. Cal.	Group	Mfg.	Model
0001	P25307	HEDXG1	Head Accel X		Rwd	809.10240	- 1/22/2003	OK	Endevco	7264C-2K-2-180
0002	P25326	HEDYG1	Head Accel Y		Lft	808.84676	- 1/22/2003	OK	Endevco	7264C-2K-2-180
0003	P25298	HEDZG1	Head Accel Z		Up	807.64741	- 1/22/2003	OK	Endevco	7264C-2K-2-180
0004	P25318	HEDXR1	Head Accel X Red		Rwd	810.61397	- 1/22/2003	OK	Endevco	7264C-2K-2-180
0005	P25301	HEDYR1	Head Accel Y Red		Lft	802.80983	- 1/22/2003	OK	Endevco	7264C-2K-2-180
0006	P25305	HEDZR1	Head Accel Z Red		Up	807.23993	- 1/21/2003	OK	Endevco	7264C-2K-2-180
0007	1716A-1535-FX	NEKXF1	Neck Force X		Hd	8891.7626	- 3/21/2003	OK	Denton	1716A
0008	1716A-1535-FY	NEKYF1	Neck Force Y		Hd	8889.1703	+ 3/21/2003	OK	Denton	1716A
0009	1716A-1535-FZ	NEKZF1	Neck Force Z		Hd	13358.833	+ 3/21/2003	OK	Denton	1716A
0010	1716A-1535-MX	NEKXM1	Neck Moment X		Rt Ear	282.62505	- 3/21/2003	OK	Denton	1716A
0011	1716A-1535-MY	NEKYM1	Neck Moment Y		Chn	283.29670	+ 3/21/2003	OK	Denton	1716A
0012	1716A-1535-MZ	NEKZM1	Neck Moment Z		Chn	282.83189	+ 3/21/2003	OK	Denton	1716A
0013	P25231	LURYG1	Left Upper Rib Y		Rgt	806.24842	+ 12/13/2002	OK	Endevco	7264C-2K-2-180
0014	J27507	LURYR1	Left Upper Rib Red Y		Rgt	808.38701	+ 3/18/2003	OK	Endevco	7264-2KM5T
0015	P25075	L1RYG1	Left Lower Rib Y		Rgt	801.25195	+ 12/19/2002	OK	Endevco	7264C-2K-2-180
0016	P25076	L1RYR1	Left Lower Rib Red Y		Rgt	797.43326	+ 12/19/2002	OK	Endevco	7264C-2K-2-180
0017	P25261	T12YG1	Lower Spine Y		Lft	401.56862	- 11/21/2002	OK	Endevco	7264C-2K-2-180
0018	P25374	T12YR1	Lower Spine Red Y		Lft	396.97923	- 12/19/2002	OK	Endevco	7264C-2K-2-180
0019	P25063	PEVYG1	Pelvis Accel Y		Lft	400.40353	- 12/19/2002	OK	Endevco	7264C-2K-2-180
0020	P25074	PEVYR1	Pelvis Accel Red Y		Lft	397.60196	- 12/19/2002	OK	Endevco	7264C-2K-2-180
0021	J27271	HEDXG4	Head Accel X		Rwd	800.50031	- 3/11/2003	OK	Endevco	7264-2000TZ
0022	J27352	HEDYG4	Head Accel Y		Lft	793.42941	- 3/11/2003	OK	Endevco	7264-2000TZ
0023	J27283	HEDZG4	Head Accel Z		Up	809.34541	- 3/11/2003	OK	Endevco	7264-2000TZ
0024	J29134	HEDXR4	Head Accel X Red		Rwd	793.89691	- 3/11/2003	OK	Endevco	7264-2000TZ
0025	J29020	HEDYR4	Head Accel Y Red		Lft	802.35692	- 3/11/2003	OK	Endevco	7264-2000TZ
0026	J27322	HEDZR4	Head Accel Z Red		Up	814.06811	- 3/11/2003	OK	Endevco	7264-2000TZ
0027	1716-0627-1X	NEKXF4	Neck Force X		Hd	8900.5691	- 3/10/2003	OK	Denton	1716
0028	1716-0627-FY	NEKYF4	Neck Force Y		Lft	8904.8480	- 3/10/2003	OK	Denton	1716
0029	1716-0627-FZ	NEKZF4	Neck Force Z		Hd	13361.202	+ 3/10/2003	OK	Denton	1716
0030	1716-0627-MX	NEKXM4	Neck Moment X		Rt Ear	282.90624	- 3/10/2003	OK	Denton	1716
0031	1716-0627-MY	NEKYM4	Neck Moment Y		Chn	282.62862	- 3/10/2003	OK	Denton	1716
0032	1716-0627-MZ	NEKZM4	Neck Moment Z		Chn	282.46679	+ 3/10/2003	OK	Denton	1716

Channel Report

4/30/2003 8:13:07 AM

Name of Test		030430	System	MINIDAU	Name of DAC		DAUB				
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model	
00001	P25068	LURYG4	Left Upper Rib Y	Rgt	804.05798	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00002	P25067	LURYR4	Left Upper Rib Red Y	Rgt	808.88509	+	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00003	P25389	LIRYG4	Left Lower Rib Y	Rgt	799.52528	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00004	P25395	LIRYR4	Left Lower Rib Red Y	Rgt	788.95463	+	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00005	P14826	T12YC4	Lower Spine Y	Lft	401.80813	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00006	P25069	T12YR4	Lower Spine Red Y	Lft	398.15851	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00007	P25397	PEVYG4	Pelvis Accel Y	Lft	400.34404	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00008	P25061	PEVYR4	Pelvis Accel Red Y	Lft	401.07161	-	12/19/2002	OK	065nlr	Endevco	7264C-2K-2-180
00009	03D03C27-N26	RFSXG1	RGT SIDE SILL FRNT ST X	FWD	402.51572	+	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
00010	03D03C27-N22	RFSYG1	RGT SIDE SILL FRNT ST Y	LT	989.37198	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
00011	03D03C27-N18	RFSZG1	RGT SIDE SILL FRNT ST Z	UP	401.60012	-	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
00012	333398	RFSXG1	RGT SIDE SILL RR ST X	FWD	401.92799	+	3/4/2003	OK	-1	Endevco	7264-2000TZ
00013	P23149	RFSYG1	RGT SIDE SILL RR ST Y	LT	996.10894	-	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
00014	P23201	RFSZG1	RGT SIDE SILL RR ST Z	UP	397.08391	-	3/3/2003	OK	-1	Endevco	7264C-2K-2-180
00015	03D03C27-N24	RDKXG1	RR FLR PAN ABV AXLE X	FWD	1018.9054	+	4/3/2003	OK	-1	Entran	EGE-73B6Q-200
00016	03C03C14-N26	RDKYG1	RR FLR PAN ABV AXLE Y	LT	1015.0674	-	3/24/2003	OK	-1	Entran	EGE-73B6Q-200
00017	03C03C14-N07	RDKZG1	RR FLR PAN ABV AXLE Z	UP	984.61538	-	3/24/2003	OK	-1	Entran	EGE-73B6Q-200
00018	P25257	LRSYG1	LFT SIDE SILL RR ST Y	RT	996.30278	+	11/21/2002	OK	-1	Endevco	7264C-2K-2-180
00020	333401	LFSYG1	LFT SIDE SILL FRNT ST Y	RT	1012.3178	-	3/4/2003	OK	-1	Endevco	7264-2000TZ
00021	P26430	RRTYG1	RGT RR OCP COMP Y	RT	1468.5214	+	3/20/2003	OK	-1	Endevco	7264C-2K-2-180
00022	337150	LLBYG1	LFT LOWER B-POST Y	RT	1545.0540	+	3/6/2003	OK	-1	Endevco	7264-2000TZ
00023	334877	LUBYG1	LFT MID B-POST Y	RT	1443.7175	+	3/4/2003	OK	-1	Endevco	7264-2000TZ
00024	335808	LLAYG1	LFT LOWER A-POST Y	LT	1468.1424	-	2/27/2003	OK	-1	Endevco	7264-2000TZ
00025	312724	LUAYG1	LFT MID A-POST Y	LT	1550.3875	-	3/4/2003	OK	-1	Endevco	7264-2000TZ
00026	03D03C28-N17	LFTYG1	LFT FRNT ST TRK Y	RT	1549.6368	+	4/4/2003	OK	-1	Entran	EGE-73B6Q-200
00027	334118	LRTYG1	LFT RR ST TR Y	RT	1499.4435	+	3/4/2003	OK	-1	Endevco	7264-2000TZ
00028	03C03C14-F01	VCGXG1	VEH C/G X	FWD	1008.8669	+	3/28/2003	OK	-1	Entran	EGE-73B6Q-200
00029	03C03C14-F21	VCGYG1	VEH C/G Y	RT	1015.8730	-	3/27/2003	OK	-1	Entran	EGE-73B6Q-200
00030	03C03C14-F24	VCGZG1	VEH C/G Z	UP	1020.7336	-	3/31/2003	OK	-1	Entran	EGE-73B6Q-200

Channel Report

4/30/2003 8:13:07 AM

Name of Test 030430

Name of DAU DAUC

System MINIDAU

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
0001	P23188	BCGXG1	MDB CG X-AXIS	FWD	599.46142	B	+ 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0002	P23380	BCGYG1	MDB CG Y-AXIS	RT	603.49603	B	+ 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0003	P23416	BCGZG1	MDB CG Z-AXIS	LP	594.90611	B	- 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0004	P23362	LRRXG1	MDB LT RR X-AXIS	RR	606.49135	B	- 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0005	P23460	LRRYG1	MDB LT RR Y-AXIS	RT	605.37268	B	+ 3/3/2003	OK -1	Endevco	7264C-2K-2-180
0006	EVENT	EVENT	EVENT		5.12	V	+ 10/15/2002	OK -1	TRC	Event

Digital and System Channel Report

2003-04-30 08:13:19

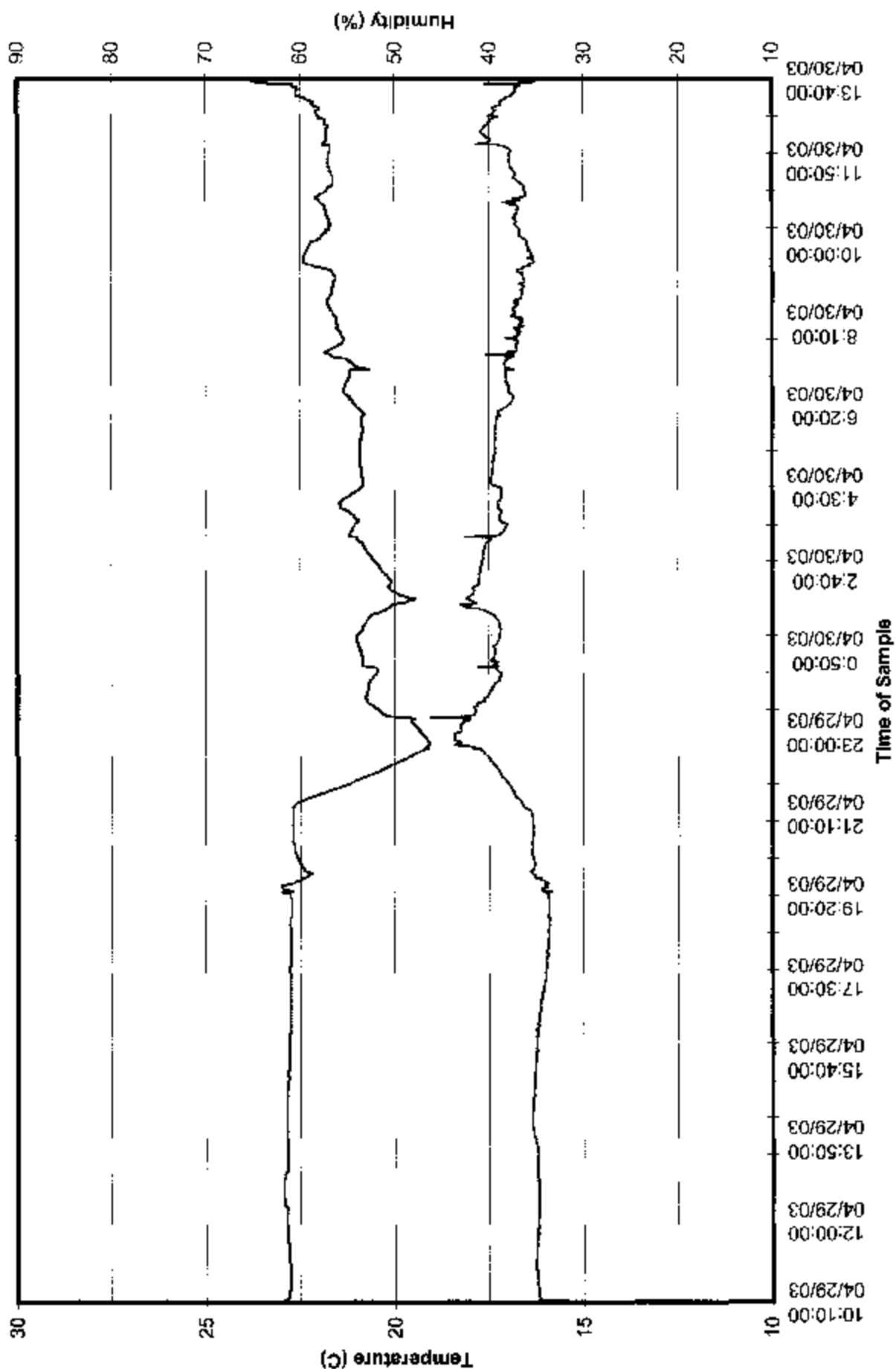
Name of Test	030430	System		MINIDAU	Name of DAI	DAUC	description
enable Channel		Short Name	Type	Data File		Module Type	
Yes	0501	DIGC	dig0	DAUC0501		KM3710 Controller	
bit position	bit	short	long	description			
MSB = bit 15	1	MDBR	MDB RT SIDE CONTACT	R			
bit 14	1	MDBLI	MDB LT SIDE CONTACT	L			
bit 13	0						
bit 12	0						
bit 11	0						
bit 10	0						
bit 09	0						
bit 08	0						
bit 07	0						
bit 06	0						
bit 05	0						
bit 04	0						
bit 03	0						
bit 02	0						
bit 01	0						
LSB = bit 00	0						

Chsnam	Location	Model	Name	Description	Manufacturer	Sens./mV/V/	Fullscal	Calcat	Pos Output	Flip
HEDXC	Head Accel X	7264C-2K-2-18	P25307		Endevco	0.01808	2000	1/22/2003	Rwd	1
HEDYG	Head Accel Y	7264C-2K-2-18	P25326		Endevco	0.0211	2000	1/22/2003	Lt	1
HEDZG	Head Accel Z	7264C-2K-2-18	P25298		Endevco	0.02186	2000	1/22/2003	Up	1
HEDXR	Head Accel X Red	7264C-2K-2-18	P25318		Endevco	0.01914	2000	1/22/2003	Rwd	1
HEDYR	Head Accel Y Red	7264C-2K-2-18	P25301		Endevco	0.01993	2000	1/22/2003	Lt	1
HEDZR	Head Accel Z Red	7264C-2K-2-18	P25305		Endevco	0.02046	2000	1/21/2003	Up	1
NEKXF	Neck Force X	1716A	1716A-1535-FX		Denton	0.000185746	8896.4	3/21/2003	Hd Fd Cst Rr	1
NEKYF	Neck Force Y	1716A	1716A-1535-FY		Denton	0.000181126	8896.4	3/21/2003	Hd Lt Cst Rr	0
NEKZF	Neck Force Z	1716A	1716A-1535-FZ		Denton	0.000093708	11344.6	3/21/2003	Hd Up Cst Dn	0
NEKXM	Neck Moment X	1716A	1716A-1535-MX		Denton	0.00380637	282.5	3/21/2003	Rt Far to Rt Shld	1
NEKYM	Neck Moment Y	1716A	1716A-1535-MY		Denton	0.005791238	282.5	3/21/2003	Chn to Strm	0
NEK7M	Neck Moment Z	1716A	1716A-1535-MZ		Denton	0.008154336	282.5	3/21/2003	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P25231		Endevco	0.01764	2000	12/13/2002	Rgt	0
LURYR	Left Upper Rib Red Y	7264-2KM5T	J27507		Endevco	0.02639	2000	3/18/2003	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P25075		Endevco	0.01775	2000	12/19/2002	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25076		Endevco	0.01566	2000	12/19/2002	Rgt	0
L12YG	Lower Spine Y	7264C-2K-2-18	P25261		Endevco	0.017	2000	11/21/2002	Lt	1
T12YR	Lower Spine Red Y	7264C-2K-2-18	P25374		Endevco	0.02186	2000	12/19/2002	Lt	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P25063		Endevco	0.01801	2000	12/19/2002	Lt	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P25074		Endevco	0.01764	2000	12/19/2002	Lt	1

Dummy 065nir Type SID

Chsnam	Location	Model	Name	Description	Manufacturer	Sens./mV/V	Fullscal	Caldat	Pos Output	Fltp
HEDXG	Head Accel X	7264-2000TZ	J27271		Endevco	0.03198	2000	3/11/2003	Rwd	1
HEDYG	Head Accel Y	7264-2000TZ	J27352		Endevco	0.0239	2000	3/11/2003	Lft	1
HEDZG	Head Accel Z	7264-2000TZ	J27283		Endevco	0.02343	2000	3/11/2003	Up	1
HEDXR	Head Accel X Red	7264-2000TZ	J29134		Endevco	0.02804	2000	3/11/2003	Rwd	1
HEDYR	Head Accel Y Red	7264-2000TZ	J29020		Endevco	0.02279	2000	3/11/2003	Lft	1
HEDZR	Head Accel Z Red	7264-2000TZ	J27322		Endevco	0.02419	2000	3/11/2003	Up	1
NEKXF	Neck Force X	1716	1716-0627-FX		Denton	0.000191111	N	8896.4	1ld Fd,Cst Rr	1
NEKYF	Neck Force Y	1716	1716-0627-FY		Denton	0.000188514	N	8896.4	Hd L,Cst Rt	0
NEKZF	Neck Force Z	1716	1716-0627-FZ		Denton	0.000085345	N	13344.6	Hd Up,Cst Dn	0
NEKXM	Neck Moment X	1716	1716-0627-MX		Denton	0.005914336	N	282.5	Rt Far to Rt Shld	1
NEKYM	Neck Moment Y	1716	1716-0627-MY		Denton	0.005978761	N	282.5	Chn to Strm	0
NEKZM	Neck Moment Z	1716	1716-0627-MZ		Denton	0.00831469	N	282.5	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P25068		Endevco	0.01721	2000	12/19/2002	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P25067		Endevco	0.01623	2000	12/19/2002	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P25389		Endevco	0.01642	2000	12/19/2002	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25395		Endevco	0.02028	2000	12/19/2002	Rgt	0
T12YG	Lower Spine Y	7264C-2K-2-18	P14826		Endevco	0.01991	2000	12/19/2002	Lft	1
T12YR	Lower Spine Red Y	7264C-2K-2-18	P25069		Endevco	0.01692	2000	12/19/2002	Lft	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P25197		Endevco	0.01827	2000	12/19/2002	Lft	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P25061		Endevco	0.01798	2000	12/19/2002	Lft	1

Side Impact Protection Compliance Test/C30512





PLASCORE

SIDE IMPACTOR BARRIER CERTIFICATION

Date: April 1, 2003
To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION


Customer P.O. Number: 22964
Work Order Number: 16444
Quantity: 01 piece

CORE INFORMATION

Core Type: PCGA-1/4-5.2-P-3003-T
Measured Cell Size: 0.250 inches
Measured Density: 5.2 pcf

Unit Number: 013C0203

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 232 – 250 psi as per DWG# DSL-1285.


Quality Control Representative
Karl D. Zwaanstra





PLASCORE

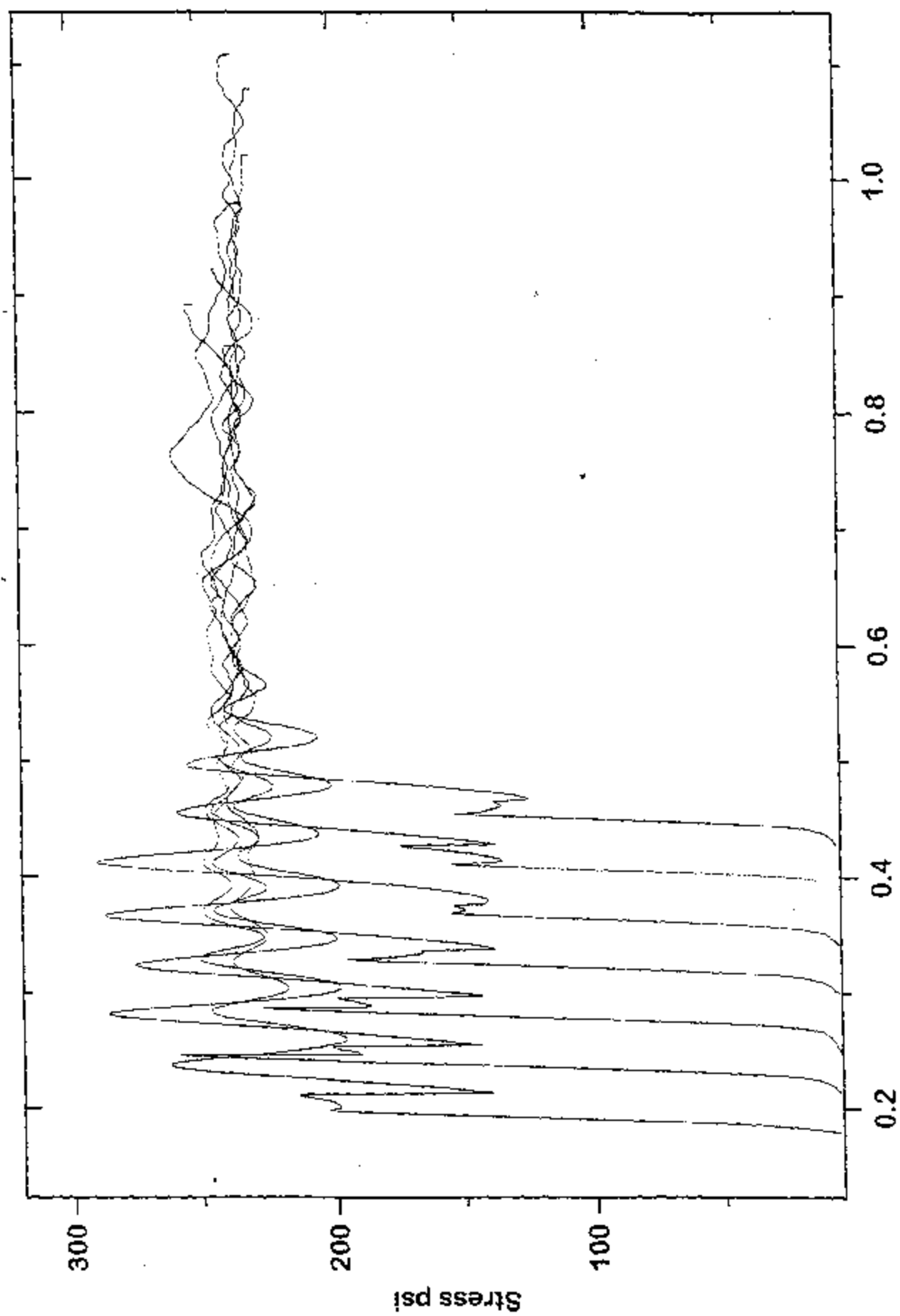
Crush Data

232 - 250 psi per DWG # DSL-1285

Block Number: 013C0203

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	233.48	233.35	237.86
2	242.12	244.14	240.86
3	240.11	239.69	235.51
4	239.95	247.24	244.81
5	236.72	235.46	235.51
6	233.23	233.94	234.72
7	235.06	233.80	236.57

BLOCK # 013C0203 Sample ID: IN226629



SIDE IMPACTOR BARRIER CERTIFICATION

Date: April 1, 2003
To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION


Customer P.O. Number: 22964
Work Order Number: 16444
Quantity: 01 piece

CORE INFORMATION

Core Type: PAMG-3/8-1.6-001-P-5052-T
Measured Cell Size: 0.375 inches
Measured Density: 1.6 pcf

Unit Number: 018A0303

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 45 psi +/- 2.5 psi as per DWG# DSL-1285.


Quality Control Representative
Karl D. Zwaanstra





PLASCORE

Crush Data

45 psi +/- 2.5 psi per DWG # DSL-1285

Block Number: 018A0303

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	47.24	46.77	46.95
2	47.27	47.03	47.09
3	46.53	46.87	45.83
4	46.33	46.89	47.34
5	45.79	46.39	47.16
6	46.63	45.77	46.37
7	47.22	47.14	46.52

BLOCK # 018A0303 Sample ID: IN226931

